

JAERI-M

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CATALOGUE OF NUCLEAR FUSION CODES-1976

October 1976

Div. of Thermonuclear Fusion Research  
Div. of Large Tokamak Development

日 本 原 子 力 研 究 所  
Japan Atomic Energy Research Institute

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Catalogue of Nuclear Fusion Codes - 1976

Division of Thermonuclear Fusion Research and  
Division of Large Tokamak Development  
Tokai, JAERI

(Received October 2, 1976)

A catalogue is presented of the computer codes in nuclear fusion research developed by JAERI, Division of Thermonuclear Fusion Research and Division of Large Tokamak Development in particular. It contains a total of about 100 codes under the categories: Atomic Process, Data Handling, Experimental Data Processing, Engineering, Input and Output, Special Languages and Their Application, Mathematical Programming, Miscellaneous, Numerical Analysis, Nuclear Physics, Plasma Physics and Fusion Research, Plasma Simulation and Numerical Technique, Reactor Design, Solid State Physics, Statistics, and System Program.

JAERI - M 6769

核融合・計算機コード・カタログ - 1976

日本原子力研究所東海研究所

核融合研究部

大型トカマク開発部

(1976年10月2日受理)

本報告書は、原研の核融合研究部および大型トカマク開発部で開発された核融合研究に関する計算機コードのカタログである。約100件を次の16のカテゴリーに分けて集録している：

Atomic Process, Data Handling, Experimental Data Processing, Engineering, Input and Output, Special Languages and Their Application, Mathematical Programming, Miscellaneous, Numerical Analysis, Nuclear Physics, Plasma Physics and Fusion Research, Plasma Simulation and Numerical Technique, Reactor Design, Solid State Physics, Statistics, and System Program.

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## Preface

With a rapid growth of the nuclear fusion research many computer codes have been written and used in our divisions. There may be a duplication of efforts, in that similar codes are frequently developed more or less independently. In order to reduce the duplication it is most necessary to be informed what kinds of computer codes have been already developed. For this purpose the compilation of the minimum information on the existing codes was attempted.

Almost all of the codes in this catalogue were developed by JAERI personnel, especially of division of thermonuclear fusion research and division of large tokamak development. These codes listed in this catalogue are, in principle, for internal use and not on release at present. As it was the first time to compile a catalogue of the codes in our divisions, it was attempted to include as many codes as possible which have been written and used up to now. This attempt was mostly successful owing to the kind cooperation of the authors of the codes but still many codes are supposed to remain unregistered. They are hopefully registered in the next edition.

This catalogue was edited by Tatsuoki Takeda, Masao Okamoto, and Masatoshi Tanaka (Plasma Theory Laboratory, Division of Thermo nuclear Fusion Research). The responsibility for the description of each abstract lies with the authors.

Remarks for Users of the Catalogue

The main part of this catalogue is composed of a collection of abstracts of the computer codes. In this collection a user can find out the author's name and outline of the code. The index number and author index make it easy to find out the abstract of the desired computer code. The following items should be also remarked.

- (1) All the computer codes in this catalogue are more or less concerned with the nuclear fusion research, especially with the tokamak confinement. However, more general problems such as numerical analysis, nuclear physics and so on are not neglected. From this standpoint key words which are classified into 16 categories are chosen as the principal parts of the index numbers.
- (2) Some codes have several index numbers. In this case abstract of the code will be found in the class corresponding to the principal index number of the code. The title of the code is cited also in the classes corresponding to the subsidiary index numbers.
- (3) Most of the codes in this catalogue may be transitory, being written to solve ad hoc problems with limited generality and also without a due recognition of intelligibility.
- (4) In future it is intended to file the registered computer codes systematically in magnetic disks and/or magnetic tapes with necessary amendments.
- (5) Further details of the code should be directly applied to the author.

List of Index Numbers

## [ 1] AP: ATOMIC PROCESS

AP00.\*\*\* GENERAL  
AP10.\*\*\* THEORETICAL ANALYSIS  
AP20.\*\*\* EXPERIMENTAL ANALYSIS  
AP30.\*\*\* APPLICATION  
AP99.\*\*\* MISCELLANEOUS

## [ 2] DH: DATA HANDLING

## [ 3] DP: EXPERIMENTAL DATA PROCESSING

DP00.\*\*\* GENERAL  
DP10.\*\*\* DATA PROCESSING SYSTEM  
DP20.\*\*\* ANALYSIS OF EXPERIMENTAL DATA  
DP99.\*\*\* MISCELLANEOUS

## [ 4] EN: ENGINEERING

EN00.\*\*\* GENERAL  
EN10.\*\*\* MAGNETIC FIELD  
EN20.\*\*\* CONTROL  
EN30.\*\*\* VACUUM AND SURFACE PHYSICS  
EN40.\*\*\* ACCELERATOR AND INJECTOR  
EN50.\*\*\* ELECTRONICS AND POWER SUPPLY  
EN60.\*\*\* STRUCTURAL MECHANICS  
EN70.\*\*\* HEAT TRANSFER  
EN99.\*\*\* MISCELLANEOUS

## [ 5] IO: INPUT AND OUTPUT

IO00.\*\*\* GENERAL  
IO10.\*\*\* INPUT DATA  
IO20.\*\*\* LINE PRINTER  
IO30.\*\*\* PLOTTER  
IO40.\*\*\* GRAPHIC DISPLAY  
IO99.\*\*\* MISCELLANEOUS

## [ 6] LA: SPECIAL LANGUAGES AND THEIR APPLICATION

LA00.\*\*\* GENERAL  
LA10.\*\*\* HIGH LEVEL LANGUAGES  
LA20.\*\*\* APPLICATION TO NUMERICAL TREATMENT  
LA30.\*\*\* APPLICATION TO ANALYTICAL TREATMENT  
LA99.\*\*\* MISCELLANEOUS



## [ 7] MP: MATHEMATICAL PROGRAMMING

MP00.\*\*\* GENERAL  
MP10.\*\*\* LINEAR PROGRAMMING  
MP20.\*\*\* NONLINEAR PROGRAMMING  
MP30.\*\*\* DYNAMIC PROGRAMMING  
MP99.\*\*\* MISCELLANEOUS

## [ 8] MS: MISCELLANEOUS

## [ 9] NA: NUMERICAL ANALYSIS

NA00.\*\*\* GENERAL  
NA10.\*\*\* MATRIX  
NA11.\*\*\* BASIC OPERATION OF MATRICES  
NA12.\*\*\* LINEAR EQUATIONS  
NA13.\*\*\* MATRIX INVERSION  
NA14.\*\*\* EIGENVALUE PROBLEMS  
NA20.\*\*\* NUMERICAL INTEGRATION AND DIFFERENTIATION  
NA30.\*\*\* DIFFERENTIAL EQUATIONS  
NA40.\*\*\* INTEGRAL EQUATIONS  
NA50.\*\*\* NONLINEAR EQUATIONS  
NA60.\*\*\* INTERPOLATION, APPROXIMATION, AND SMOOTHING  
NA70.\*\*\* TRANSCENDENTAL FUNCTIONS  
NA80.\*\*\* FOURIER ANALYSIS  
NA90.\*\*\* COMPLEX ANALYSIS  
NA99.\*\*\* MISCELLANEOUS

## [10] NP: NUCLEAR PHYSICS

NP00.\*\*\* GENERAL  
NP10.\*\*\* THEORETICAL ANALYSIS  
NP20.\*\*\* EXPERIMENTAL ANALYSIS  
NP30.\*\*\* ENERGY LOSS  
NP40.\*\*\* APPLICATION  
NP99.\*\*\* MISCELLANEOUS

## [11] PF: PLASMA PHYSICS AND FUSION RESEARCH

PF00.\*\*\* GENERAL  
PF10.\*\*\* EQUILIBRIUM  
PF20.\*\*\* STABILITY  
PF30.\*\*\* TRANSPORT  
PF40.\*\*\* WAVE  
PF50.\*\*\* TURBULENCE AND FLUCTUATION

- PF60.\*\*\* PLASMA PRODUCTION
- PF70.\*\*\* PLASMA HEATING
- PF80.\*\*\* DIAGNOSTICS
- PF99.\*\*\* MISCELLANEOUS
- [12] PS: PLASMA SIMULATION AND NUMERICAL TECHNIQUE
  - PS00.\*\*\* GENERAL
  - PS10.\*\*\* FLUID MODEL SIMULATION
  - PS20.\*\*\* PARTICLE MODEL SIMULATION
  - PS30.\*\*\* VLASOV EQUATION
  - PS40.\*\*\* FOKKER PLANCK EQUATION
  - PS50.\*\*\* HYBRID MODEL SIMULATION
  - PS60.\*\*\* TOKAMAK RADIAL TRANSPORT CODE
  - PS70.\*\*\* MONTE CARLO TECHNIQUE
  - PS80.\*\*\* DIFFERENTIAL EQUATION
  - PS90.\*\*\* OTHER NUMERICAL TECHNIQUE
  - PS99.\*\*\* MISCELLANEOUS
- [13] RD: REACTOR DESIGN
- [14] SP: SOLID STATE PHYSICS
- [15] ST: STATISTICS
  - ST00.\*\*\* GENERAL
  - ST10.\*\*\* ELEMENTARY STATISTICS
  - ST20.\*\*\* CORRELATION
  - ST30.\*\*\* REGRESSION
  - ST40.\*\*\* FACTOR ANALYSIS
  - ST50.\*\*\* TIME SERIES
  - ST60.\*\*\* RANDOM NUMBER
  - ST70.\*\*\* DISTRIBUTION FUNCTION
  - ST99.\*\*\* MISCELLANEOUS
- [16] SY: SYSTEM PROGRAM

ABSTRACT OF COMPUTER CODE

AP : ATOMIC PROCESS

CONTENTS

\* AP20.001

Index Number  
AP20.001

Serial Number  
76-0001

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Time evolution of the intensity of impurity lines is calculated, where  $\Gamma_p$  and influx are considered and uniform distribution for impurity,  $N_e$  and  $T_e$  are assumed.

1. Title of program: Time History of Impurity Spectral Line
2. Name of code or routine: THISL-I  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: ).
4. Authors: Satoshi KASAI  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: ).  
(5-4) Size of core memory required: 53 ~~kw~~ ~~KB~~.  
(5-5) Number of bits in a word: 36 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: ).
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

9. References:

L.M. Goldman and R.W. Kilb; Plasma Physics 6 (1964) 217.  
G.D. Hobbs et al., Proceedings of the Fifth International Conference on Ionization Phenomena in Gases (North-Holland, Amsterdam, 1962) p.1965.  
{To be completed by the authors}  
\*\*\*\*\*  
{To be completed by the cataloguers}

1. Index number: AP20.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: ).
4. Key words:
5. Laboratory or group:
6. Remarks:

DP : EXPERIMENTAL DATA PROCESSING

CONTENTS

\* DP20.001 - DP20.014

Index Number  
DP20.001

Serial Number  
76-0002

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Phase difference, frequency and correlations are obtained by method of numerical comparator from experimental data.

1. Title of program: Numerical Comparator
2. Name of code or routine: NFFC  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Teruaki SHOJI, Michiya SHIMADA  
Programmed by:
5. Computers  
 (5-1) Name of computers: OKITAC 4500C  
 (5-2) Operating systems:  
 (5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
 (5-4) Size of core memory required: 16 kW (or kB).  
 (5-5) Number of bits in a word: 32 bits/w.  
 (5-6) Overlay structure:  Yes,  No.  
 (5-7) Magnetic disks:  Yes,  No.  
 (5-8) Number of magnetic tapes required: 1  
 (5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

9. References:

{To be completed by the authors}  
 \*\*\*\*\*  
 {To be completed by the cataloguers}

1. Index number: DP20.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  IRB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
DP20.002

Serial Number  
76-0003

COMPUTER PROGRAM SUMMARY

1. Title of program: Data Processing of the Electromagnetic Probe Signal
2. Name of code or routine: JZDP  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: ).
4. Authors: Teruaki SHOJI, Michiya SHIMADA, Tomohide KAWAKAMI  
Programmed by:
5. Computers  
(5-1) Name of computers: OKITAC 4500C  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: ).  
(5-4) Size of core memory required: 25 kW (or kB).  
(5-5) Number of bits in a word: 32 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: 1  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: ).
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

8. Brief description of the program:

Plasma parameters (currents, shifts,  $\beta$ , confinement time etc.) are derived from electromagnetic probe signals in Tokamak experiments.

9. References:

T. Shoji et al., KAKUYUGO KENKYU Vol. 34-2 (1975).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. Index number: DP20.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: ).
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0004

Index Number  
DP20.003

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Amplitudes and phase differences of two waveforms for each spectral component are calculated and displayed.  
Exclusively used in the JFT-2 data acquisition system (sampling time = 2.85 micro sec.)

1. Title of program: Interpolated Fourier Transformation I

2. Name of code or routine: MD3D

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Michiya SHIMADA, Teruaki SHOJI

Programmed by:

5. Computers OKITAK-4500C

(5-1) Name of computers:

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )

(5-4) Size of core memory required: 4 k $\bar{b}$  (or  $\bar{k}b$ ).

(5-5) Number of bits in a word: 32 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: One for data source

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck:

7. Run time for the test deck:

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: DP20.003

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:



Index Number  
DP20.004

Serial Number  
76-0005

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:  
Amplitudes and phase differences of two waveforms for each spectral component are calculated and displayed.  
Exclusively used in the JFT-2 data acquisition system (sampling time variable  $\geq 10$  ns).

1. Title of program: Interpolated Fourier Transformation 2

2. Name of code or routine: TRNG

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Michiya SHIMADA, Teruaki SHOJI

Programmed by:

5. Computers

[5-1] Name of computers: OKTAC-4500C

[5-2] Operating systems:

[5-3] Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )

[5-4] Size of core memory required: 4  8K ( 16K).

[5-5] Number of bits in a word: 32 bits/word.

[5-6] Overlay structure:  Yes,  No.

[5-7] Magnetic disks:  Yes,  No.

[5-8] Number of magnetic tapes required: One for data source

[5-9] Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XV platter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck:

7. Run time for the test deck:

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: DP20.004

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0006

Index Number  
DP20.005

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Auto and cross correlations are computed and displayed in graphic display. Statistical mean of correlations can be computed and power spectrum may be obtained with use of MD3D.

1. Title of program: Auto and Cross Correlations for Data Processing

2. Name of code or routine: AAC

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Authors: Teruaki SHOJI, Takumi YAMAMOTO

Programmed by:

5. Computers

(5-1) Name of computers: OKITAC-4500C

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 16 kb (or kb).

(5-5) Number of bits in a word: 32 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: One for data source

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck:

7. Run time for the test deck:

9. References:

(+To be completed by the authors)  
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(+To be completed by the cataloguers)

1. Index number: DP20.005

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  PB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0007

Index Number  
DP20.006

COMPUTER PROGRAM SUMMARY

1. Title of program: Modified Lagrange Interpolation
2. Name of code or routine: LAGINT  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Michiya SHIMADA  
Programmed by:
5. Computers: OKIYAC-4500C  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 16 ~~kw~~ (4k B).  
(5-5) Number of bits in a word: 16 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

8. Brief description of the program:

Lagrange's formula of Interpolation:  $y(x) = \sum_{i=1}^N F_i(x)y_i$ ,  $F_i(x) = \prod_{j \neq i} \frac{x-x_j}{x_j-x_i}$ , is modified into  $\hat{y}(x) = \sum_{i=1}^N \hat{F}_i(x)y_i / \sum_{k=1}^N \hat{F}_k(x)$ ,  
 $\hat{F}_i(x) = \left\{ \prod_{j \neq i} \left( \frac{x-x_j}{x_j-x_i} + \frac{\alpha}{N} \right) \right\} / \left( 1 + \exp\left( \frac{|x-x_i| - \lambda}{a} \right) \right)$ .  
 Here,  $\alpha$  is smoothing factor, and  $f = (1 + \exp(\frac{|x-x_i| - \lambda}{a}))$  is the weighting function, analogous to the Fermi-Dirac distribution function,  $\lambda$  being the threshold and  $d$  the diffuseness.

9. References:

- (+To be completed by the authors)  
 \*\*\*\*\*  
 (+To be completed by the cataloguers)  
 \*\*\*\*\*
1. Index number: DP20.006, NA60.001
  2. Date of registration:
  3. Form of catalogued program:  
 Source tape,  Source file,  IRB file,  JEB file,  
 Others (Please specify: )
  4. Key words:
  5. Laboratory or group:
  6. Remarks:

Serial Number  
76-0008

Index Number  
DP20.007

8. Brief description of the program:

The ion temperature and neutral density are calculated from 10-ch-neutral particle energy analyser signals.

COMPUTER PROGRAM SUMMARY

1. Title of program: Data Processing of Neutral Particle Analyser
2. Name of code or routine: NEUTRAL  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: HIROSHI TAKEUCHI  
Programmed by: HIROSHI TAKEUCHI
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 37 kW (or kB).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 400
7. Run time for the test deck: 4 sec.

9. References:

H. Takeuchi, JAERI M-6605 (1976).

(+To be completed by the authors)  
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(+To be completed by the cataloguers)

1. Index number: DP20.007
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0009

Index Number  
DP20.008

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:  
The best fitting values of electron temperature and density are obtained by least-square linear Taylor differential correction method.

1. Title of program: Estimation of Electron Temperature and Density Measured by Thomson Scattering
2. Name of code or routine: LASCAT I  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Tohru MATOBA  
Programmed by:
5. Computers  
[5-1] Name of computers: FACOM 230/75  
[5-2] Operating systems:  
[5-3] Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
[5-4] Size of core memory required: 53 ~~kB~~ (or ~~kB~~)  
[5-5] Number of bits in a word: bits/W.  
[5-6] Overlay structure:  Yes,  No.  
[5-7] Magnetic disks:  Yes,  No.  
[5-8] Number of magnetic tapes required:  
[5-9] Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 291
7. Run time for the test deck: 42.7 sec

9. References:  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. Index number: DP20.008
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
DP20.009

Serial Number  
76-0010

COMPUTER PROGRAM SUMMARY

1. Title of program: Symmetric Abel Inversion
2. Name of code or routine: ABELISEMP 2  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Tohru MATOBA  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 40 KB (~~KB~~)  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 193
7. Run time for the test deck: 27 sec

8. Brief description of the program:  
The best fitting curve is obtained analytically from measured values by the least-square estimation of nonlinear parameters.

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: DP20.009
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0011

Index Number  
DP20.010

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Abel inversion is carried out by an inverse matrix method.  
A cylindrical symmetry is assumed.

1. Title of program: Abel Inversion Calculation
2. Name of code or routine: ABELIC  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: 1.)
4. Authors: Tohru MATOBA  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 32 ~~kw~~ <sup>bits</sup> ~~kb~~ <sup>W</sup>.  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 87
7. Run time for the test deck: 38 sec

9. References:

- (+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. Index number: DP20.010
  2. Date of registration:
  3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: )
  4. Key words:
  5. Laboratory or group:
  6. Remarks:

Index Number

DP20.011

Serial Number

76-0012

COMPUTER PROGRAM SUMMARY

1. Title of program: Computation of  $Z_{eff}$  from Experimental Data

2. Name of code or routine: COMZ

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Yoshio GOMAY, Teruhiko TAZIMA

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )

(5-4) Size of core memory required: 32 kb (or kb).

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: No

(5-9) Other peripherals used: No

Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck: 180

7. Run time for the test deck: 1.9 sec

8. Brief description of the program:

Mean effective ionic charge  $Z_{eff}$  is calculated from experimental data: plasma resistivity, and radial profiles of plasma temperature and density. Classical model is used for plasma resistivity where the effect of trapped particles included.  $Z_{eff}$  and toroidal electric field are assumed constant over a plasma column. Energy confinement time, beta proidal and radial profiles of safety factor are also calculated.

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: DP20.011, PF30.005

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:



Index Number  
DP20.012

Serial Number  
76-0013

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:  
Smooth time series of AD-converted experimental data.  
The data set is smoothed by the least squares method and then interpolated by using spline functions.

1. Title of program: Data Processing of Electromagnetic Signals

2. Name of code or routine: LEASTSQ

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Authors: Kazuo TOI and Tatsuoki TAKEDA

Programmed by: Kazuo TOI and Tatsuoki TAKEDA

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming Language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 64 kb (or kb)

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XV platter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 450

7. Run time for the test deck: 1 min.

9. References:  
K. Toi and T. Takeda, "Numerical Data Processing of the Electromagnetic Signals Obtained in Tokamak Experiments by Means of the Method of Least Squares", JAERI-M 5437 (1973).  
K. Toi and T. Takeda, "Numerical Data Processing of the Electromagnetic Signals Obtained by Tokamak Experiments", Inst. and Methods 118 (1974) 299.  
(To be completed by the cataloguers)

1. Index number: DP20.012, NA60.002

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
DF20.013

Serial Number  
76-0014

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Determine conductivity distribution of a cylindrical plasma column from an experimental data set of a.c. plasma impedance. The plasma column is divided into N annular regions with given normalized conductivities, and the positions of the regions are determined by using a nonlinear programming code.

1. Title of program: Conductivity Distribution of a Plasma Column

2. Name of code or routine: CONDDIST

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Authors: Kazuo TOI and Tatsuoki TAKEDA

Programmed by: Kazuo TOI

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 64 k~~0~~ (or k~~0~~).

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 1174

7. Run time for the test deck: 145 s

9. References:

K. Toi, T. Takeda and S. Itoh, JAERI-M 5888 p.8-9 (1974).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: DF20.013, MP20.001

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0015

Index Number  
DP20-014

8. *Brief description of the program:*

Solve a Fredholm-type integral equation of the first kind. Shape of contours of plasma density is assumed circular and the positions and radii of the contours are determined from a set of microwave phase shift data by using a nonlinear optimization code of simplex type.

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Analysis of Density Profile in a Toroidal Plasma

2. *Name of code or routine:* INVMICR

*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )

4. *Authors:* Tatsuoki TAKEDA

*Programmed by:* Tatsuoki TAKEDA

5. *Computers*

[5-1] *Name of computers:* FACOM 230/75

[5-2] *Operating systems:*

[5-3] *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

[5-4] *Size of core memory required:* 50 ~~kw~~ (kw) .

[5-5] *Number of bits in a word:* 36 bits/W.

[5-6] *Overlay structure:*  Yes,  No.

[5-7] *Magnetic disks:*  Yes,  No.

[5-8] *Number of magnetic tapes required:* 0

[5-9] *Other peripherals used:*

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. *Number of cards in combined program and test deck:* 946

7. *Run time for the test deck:* 100 sec

9. *References:*

T. Takeda, to be published in J. Comp. Phys. (1976).  
T. Takeda, "Application of Nonlinear Optimization to Solution of Differential and Integral Equations" IPP6/147 F3 (1976).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* DP20-014, MF20-0012

2. *Date of registration:*

3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. *Key words:*

5. *Laboratory or group:*

6. *Remarks:*

EN : ENGINEERING

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\* EN10.001 - EN10.019

\* EN40.001

\* EN50.001 - EN50.005

\* EN70.001

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\* EN30.001 - EN30.002

Index Number  
EN10.001

Serial Number  
76-0016

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
By introducing appropriate weights to the analytic solutions of eddy currents obtained for a simplified cylindrical model, calculation is made of the induction toroidal electric field on the plasma axis in the presence of the eddy currents and joule loss.

1. *Title of program:* Effect of Eddy Current in Toroidal Field Coils of a Tokamak with an Air-Core Transformer

2. *Name of code or routine:* MAYUK-60

*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )

4. *Authors:* Keiji TANI, Tomofumi KOBAYASHI, Sanae TAMURA

*Programmed by:* Keiji TANI, Tomofumi KOBAYASHI

5. *Computers*

(5-1) *Name of computers:* FACOM 230/60

(5-2) *Operating systems:*

(5-3) *Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) *Size of core memory required:* 64 KB (or #B).

(5-5) *Number of bits in a word:* bits/w.

(5-6) *Overlay structure:*  Yes,  No.

(5-7) *Magnetic disks:*  Yes,  No.

(5-8) *Number of magnetic tapes required:*

(5-9) *Other peripherals used:*

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. *Number of cards in combined program and test deck:* 1060

7. *Run time for the test deck:* 360 sec

9. *References:*

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* EN10.001

2. *Date of registration:*

3. *Form of catalogued program:*  
 Source tape,  Source file,  RS file,  EB file,  Others (Please specify: )

4. *Key words:*

5. *Laboratory or group:*

6. *Remarks:*

Index Number  
EN10.002

Serial Number  
76-0017

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Eddy Current on the Resistive Shell with Cuts
2. *Name of code or routine:* EDDYCURR  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )
4. *Authors:* Akihisa KAMEARI  
*Programmed by:* Akihisa KAMEARI
5. *Computers:* FACOM 230/75  
*[5-1] Name of computers:*  
*[5-2] Operating systems:*  
*[5-3] Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
*[5-4] Size of core memory required:* 100 kw (or #B).  
*[5-5] Number of bits in a word:* 36 bits/w.  
*[5-6] Overlay structure:*  Yes,  No.  
*[5-7] Magnetic disks:*  Yes,  No.  
*[5-8] Number of magnetic tapes required:*  
*[5-9] Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. *Number of cards in combined program and test deck:* 2000
7. *Run time for the test deck:* 1 min.

8. *Brief description of the program:*

Eddy currents induced on the resistive thin straight cylinder, on the thin infinite plane and in the infinite plane of finite thickness are calculated. Each conductor has periodic cuts in two directions. The magnetic field and current are expanded into eigenmodes by means of the matrix algebras.

9. *References:*

A. Kameari, H. Aikawa, H. Ninomiya and Y. Suzuki; JAERI-M 6468 (1976).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. *Index number:* EN10.002
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  FB file,  Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
EN10.003

Serial Number  
76-0018

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
 Shape of a constant tension toroidal field coil is determined by prescribing a coil width and initial angle of inner zone.

1. *Title of program:* Constant Tension Toroidal Field Coil
2. *Name of code or routine:* TORSHAPE  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Kimihiro IOKI, Naoto ASAMI  
*Programmed by:*
5. *Computers*  
 (5-1) *Name of computers:* FACOM 230/75  
 (5-2) *Operating systems:*  
 (5-3) *Programming Language:*  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
 (5-4) *Size of core memory required:* 32 K<sup>W</sup>( K<sup>B</sup>)  
 (5-5) *Number of bits in a word:* 36 bits/W.  
 (5-6) *Overlay structure:*  Yes,  No.  
 (5-7) *Magnetic disks:*  Yes,  No.  
 (5-8) *Number of magnetic tapes required:*  
 (5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  MXY plotter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 500
7. *Run time for the test deck:* 30 sec.

9. *References:*  
 K. Ioki and N. Asami, (unpublished)
- (To be completed by the authors)  
 \*\*\*\*\*  
 (To be completed by the cataloguers)
1. *Index number:* EN10.003
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
EN10.004

Serial Number  
76-0019

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Toroidal field and ripple distribution and electromagnetic force on toroidal field coil are calculated for a toroidal field coil of arbitrary shape.

1. *Title of program:* Field and Magnetic Force Calculation of D-shape Toroidal Field Coils
2. *Name of code or routine:* DMAG  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )
4. *Authors:* Kimihiro IOKI, Naoto ASAMI  
*Programmed by:*
5. *Computers:* FACOM 230/75  
(5-1) *Name of computers:*  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) *Size of core memory required:* 64 kb (4\* 16).  
(5-5) *Number of bits in a word:* 36 bits/w.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. *Number of cards in combined program and test deck:* 800
7. *Run time for the test deck:* 4 min.

9. *References:*  
K. Ioki and N. Asami, (unpublished)  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. *Index number:* EN10.004
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*



Serial Number  
76-0020

Index Number  
EN10.005

8. *Brief description of the program:*

Calculate Toroidal Magnetic Field for three kinds of toroidal coils, i.e., circular coils with rectangular cross section, with sector type cross section and rectangular coils with rectangular cross section.

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Toroidal Magnetic Field
2. *Name of code or routine:* BTORFLD  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )
4. *Authors:* TatsuoKI TAKEDA  
*Programmed by:* TatsuoKI TAKEDA
5. *Computers*  

[5-1] Name of computers:	FACOM 230/75
[5-2] Operating systems:	
[5-3] Programming language:	<input type="checkbox"/> PL/I, <input type="checkbox"/> Fortran, <input type="checkbox"/> ALGOL, <input type="checkbox"/> Assembler, <input type="checkbox"/> Others (Please specify: )
[5-4] Size of core memory required:	50 KW (or KB)
[5-5] Number of bits in a word:	36 bits/W
[5-6] Overlay structure:	<input type="checkbox"/> Yes, <input checked="" type="checkbox"/> No
[5-7] Magnetic disks:	<input type="checkbox"/> Yes, <input checked="" type="checkbox"/> No
[5-8] Number of magnetic tapes required:	0
[5-9] Other peripherals used:	<input type="checkbox"/> Card punch, <input type="checkbox"/> Graphic display, <input type="checkbox"/> Graphic COM, <input type="checkbox"/> XV plotter, <input type="checkbox"/> Others (Please specify: )
6. *Number of cards in combined program and test deck:* 500
7. *Run time for the test deck:* 10.0 sec.

9. *References:*

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. *Index number:* EN10.005
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Serial Number  
76-0021

Index Number  
EN10.006

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Determine the optimum positions of primary windings by using the simplex type nonlinear optimization code.

1. *Title of program:* Optimum Design of Primary Windings by Simplex Method

2. *Name of code or routine:* OPTBP

*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: ).

4. *Authors:* Tatsuoki TAKEDA

*Programmed by:* Tatsuoki TAKEDA

5. *Computers*

(5-1) *Name of computers:* FACOM 230/75

(5-2) *Operating systems:*

(5-3) *Programming Language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: ).

(5-4) *Size of core memory required:* 53 kW (or kB).

(5-5) *Number of bits in a word:* 36 bits/w.

(5-6) *Overlay structure:*  Yes,  No.

(5-7) *Magnetic disks:*  Yes,  No.

(5-8) *Number of magnetic tapes required:* 0

(5-9) *Other peripherals used:*

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: ).

6. *Number of cards in combined program and test deck:* 1238

7. *Run time for the test deck:* 120 sec.

9. *References:*

K. Toi and T. Takeda; JAERI-M 6018 (1975).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* EN10.006, MP20.003

2. *Date of registration:*

3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: ).

4. *Key words:*

5. *Laboratory or group:*

6. *Remarks:*

Serial Number  
76-0022

Index Number  
EN10.007

8. Brief description of the program:

Determine the optimum positions of vertical magnetic field coils by using the simplex type nonlinear optimization code.

COMPUTER PROGRAM SUMMARY

1. Title of program: Optimum Design of Vertical Magnetic Field Coils by Simplex Method

2. Name of code or routine: OPTV  
Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: )

4. Authors: Kazuo TOI, Tatsuoki TAKEDA  
Programmed by: Kazuo TOI, Tatsuoki TAKEDA

5. Computers  
[5-1] Name of computers: FACOM 230/75

[5-2] Operating systems:

[5-3] Programming language: []PL/I, []Fortran, []ALGOL, []Assembler, []Others (Please specify: )

[5-4] Size of core memory required: 53 kW (or kB).

[5-5] Number of bits in a word: 36 bits/W.

[5-6] Overlay structure: []Yes, []No.

[5-7] Magnetic disks: []Yes, []No.

[5-8] Number of magnetic tapes required: 0

[5-9] Other peripherals used:  
[]Card punch, []Graphic display, []Graphic CON, []XY plotter, []Others (Please specify: )

6. Number of cards in combined program and test deck: 1414

7. Run time for the test deck: 51.2 sec.

9. References:

K. Toi and T. Takeda; JAERI-M 6018 (1975).

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: EN10.007, MP20.004

2. Date of registration:

3. Form of catalogued program:  
[]Source tape, []Source file, []RB file, []EB file,  
[]Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0023

COMPUTER PROGRAM SUMMARY

Index Number  
EN10.008

8. Brief description of the program:

The code enables to determine the optimum positions of poloidal coils in Tokamak by taking account of constraints imposed by the interference between coils and the ports for plasma diagnostics, neutral beam injection etc. Calculations can be made interactively on a graphic display.

1. Title of program: Positioning of Poloidal Coils using a Graphic Display

2. Name of code or routine: POPOCO GRADIS

Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: ).

4. Authors: Akihisa KANEARI, Hiromasa NINOMIYA, Hiroshi AIKAWA, Yasuo SUZUKI  
Programmed by: Akihisa KANEARI, Hiromasa NINOMIYA, Hiroshi AIKAWA

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language: []PL/I, []Fortran, []ALGOL, []Assembler, []Others (Please specify: ).

(5-4) Size of core memory required: 52.8 kW(4\*KB).

(5-5) Number of bits in a word: 36 bits/W.

(5-6) Overlay structure: []Yes, MNo.

(5-7) Magnetic disks: []Yes, MNo.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

{}Card punch, MGraphic display, MGraphic COM, MXY plotter, {}Others (Please specify: ).

6. Number of cards in combined program and test deck: 990

7. Run time for the test deck: 541.4 sec.

9. References:

A. Kameari, H. Ninomiya, H. Aikawa and Y. Suzuki; JAERI-M 6324 (1975).  
H. Aikawa, H. Ninomiya, A. Kameari and Y. Suzuki; JAERI-M 6552 (1976).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. Index number: EN10.008

2. Date of registration:

3. Form of catalogued program:  
{}Source tape, {}Source file, {}RB file, {}EB file, {}Others (Please specify: ).

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0024

Index Number  
en10.009

COMPUTER PROGRAM SUMMARY

1. Title of program: Optimization of the Configuration of Poloidal Magnetic Field Coil I
2. Name of code or routine: OPCONF-1  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Tomofumi KOBAYASHI  
Programmed by: Tomofumi KOBAYASHI
5. Computers:   
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )
6. Number of cards in combined program and test deck: 1860  
(5-4) Size of core memory required: 63 ~~kw~~ <sup>kb</sup>.  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: 2 (GPCP)  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
7. Run time for the test deck:

8. Brief description of the program:

Determine optimum configuration of ohmic heating coils and equilibrium field coils by the virtual-casing principle developed by L. E. Zakharov.

9. References:

- T. Kobayashi et al., JAERI-M 5898 (1974).
  - L. E. Zakharov, Nucl. Fusion 13 (1973) 595.
- (\*) To be completed by the authors  
\*\*\*\*\*  
(\*) To be completed by the cataloguers

1. Index number: EN10.019
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  IS file,  IS file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0025

Index Number  
EN10.010

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
 A simplex method of nonlinear programming is used to optimize the position of poloidal coils. The optimization procedure in an arbitrary area in the two-dimensional space is developed. The position of the coils is searched in an arbitrarily chosen region.

1. *Title of program:* Optimization of the Configuration of Poloidal Magnetic Field Coil II  
 2. *Name of code or routine:* OPCONF-II  
*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )

4. *Authors:* Tomofumi KOBAYASHI  
*Programmed by:* Tomofumi KOBAYASHI

5. *Computers:*  
 (5-1) *Name of computers:* FACOM 230/75  
 (5-2) *Operating systems:*  
 (5-3) *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) *Size of core memory required:* 64 ~~kw~~ (kb).  
 (5-5) *Number of bits in a word:* bits/w.  
 (5-6) *Overlay structure:*  Yes,  No.  
 (5-7) *Magnetic disks:*  Yes,  No.  
 (5-8) *Number of magnetic tapes required:* 2 (GPCP)

(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. *Number of cards in combined program and test deck:* 1920  
 7. *Run time for the test deck:*

9. *References:*  
 T. Kobayashi et al., JAERI-M 6451 (1976).

(+To be completed by the authors)  
 \*\*\*\*\*  
 (+To be completed by the cataloguers)

1. *Index number:* EN10.010  
 2. *Date of registration:*  
 3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )  
 4. *Key words:*  
 5. *Laboratory or group:*  
 6. *Remarks:*

Index Number  
EN10.011

Serial Number  
76-0026

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Nonaxisymmetric error fields produced by the line current segments are calculated using Biot-Savart's law.

1. *Title of program:* Error Magnetic Fields due to Poloidal Field Coils

2. *Name of code or routine:* ERROR FIELD

*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )

4. *Authors:* Yoshikazu YOSHIDA, Ryuta SAITO, Shogo SAKI, Akio KITSUNEZAKI  
*Programmed by:* Yoshikazu YOSHIDA

5. *Computers*

(5-1) *Name of computers:* FACOM 230/75

(5-2) *Operating systems:*

(5-3) *Programming language:*  PL/1,  FORTRAN,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) *Size of core memory required:* kb (or kB).

(5-5) *Number of bits in a word:* bits/W.

(5-6) *Overlay structure:*  Yes,  No.

(5-7) *Magnetic disks:*  Yes,  No.

(5-8) *Number of magnetic tapes required:*

(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. *Number of cards in combined program and test deck:* 120

7. *Run time for the test deck:*

9. *References:*  
Y. Yoshida et al., JAERI-M 6470 (1975).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* EN10.011  
2. *Date of registration:*  
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  JEB file,  
 Others (Please specify: )  
4. *Key words:*  
5. *Laboratory or group:*  
6. *Remarks:*

Serial Number  
76-0027

Index Number  
EN10.012

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
 Poloidal magnetic field profile by controlling coils and/or ohmic heating coils. Flux function  $\psi$ , strength of magnetic field ( $B_R, 0, B_z$ ) in the cylindrical coordinate, and n-index ( $n = -\frac{R}{B_z} \frac{\partial B_z}{\partial R}$ ) are calculated

1. *Title of program:* Poloidal Magnetic Field of Axisymmetric Coils
2. *Name of code or routine:*  
 Subname or version:
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )
4. *Authors:* Shogo SEKI, Akio KITSUNEZAKI, Ryuta SAITO  
*Programmed by:* Shogo SEKI
5. *Computers*  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
 (5-4) Size of core memory required: 88 kbit (4\*4kbit).  
 (5-5) Number of bits in a word: 36 bits/word.  
 (5-6) Overlay structure:  Yes,  No.  
 (5-7) Magnetic disks:  Yes,  No.  
 (5-8) Number of magnetic tapes required:  
 (5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 300
7. Run time for the test deck: 2 min.

9. *References:*  
 (+To be completed by the authors)  
 \*\*\*\*\*  
 (+To be completed by the cataloguers)  
 \*\*\*\*\*
1. Index number: EN10.012
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:



Index Number  
EN10.013

Serial Number  
76-0028

Date May 31, 1976

### COMPUTER PROGRAM SUMMARY

#### 8. Brief description of the program:

The axial and radial components of magnetic field in any point (except corner of conductor) generated by multiple solenoids is calculated.  
 The current density of each solenoid can be changed.  
 The output data shows both magnetic field by each solenoid and the total magnetic field by multiple solenoids.

1. Title of program: Magnetic Field by Multiple Solenoids

2. Name of code or routine: SOLENO

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Author(s): Susumu SHIMAMOTO

Programmed by: Susumu SHIMAMOTO

5. Computers

(5-1) Name of computers:

(5-2) Operating systems:

(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 5 k(10<sup>3</sup> × 48)

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 300 cards

7. Run time for the test deck: 1 sec.

#### 9. References:

(\*)To be completed by the authors  
 \*\*\*\*\*  
 (†)To be completed by the cataloguers

1. Index number: EN10.013

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
EN10.014

Date May 31, 1976

Serial Number  
76-0029

### COMPUTER PROGRAM SUMMARY

#### 8. Brief description of the program:

The X, Y and Z components of magnetic field in any point generated by multiple race truck coils is calculated.

1. Title of program: Magnetic Field by Race Truck Coil
2. Name of code or routine: CHRTCO  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Susumu SHIMAMOTO  
Programmed by: Susumu SHIMAMOTO
5. Computers  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 5 ~~kw~~ ~~kb~~ bits/w.  
(5-5) Number of bits in a word:  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: Nothing  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 300 cards
7. Run time for the test deck:

#### 9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: EN10.014
2. Date of registration:
3. Form of catalogued program:  
 Source file,  Source file,  RB file,  JES file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0030

Index Number  
EN10-015

Date May 31, 1976

8. Brief description of the program:

The X, Y and Z components of magnetic field generated by a pair of saddle type coils is calculated.

COMPUTER PROGRAM SUMMARY

1. Title of program: Magnetic Field by Dipole Magnets
2. Name of code or routine: CHSADL  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Susumu SHIMAMOTO  
Programmed by: Susumu SHIMAMOTO
5. Computers  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 5 kb (or kb)  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 400 cards
7. Run time for the test deck:

9. References:

(\*)To be completed by the authors)  
\*\*\*\*\*  
(-)To be completed by the cataloguers)

1. Index number: EN10-015
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
EN10-016

Serial Number  
76-0031

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

The toroidal, poloidal and radial component of magnetic field in any point generated by toroidal ensemble of solenoidal coil is calculated.

1. Title of program: Magnetic Field by Toroidal Coil
2. Name of code or routine: METOCR  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Susumu SHIMAMOTO  
Programmed by: Susumu SHIMAMOTO
5. Computers  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: % ~~kw~~ kB).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 500 cards
7. Run time for the test deck:

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: EN10-016
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0032

Date May 31, 1976

Index Number  
EN10.017

8. Brief description of the program:

The toroidal component, poloidal component and radial component of magnetic field in any point (except corner of conductor) generated by toroidal ensemble of D shaped coil is calculated.

COMPUTER PROGRAM SUMMARY

1. Title of program: Magnetic Field by D-shaped Toroidal Coil
2. Name of code or routine: MFTOD  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Susumu SHIMAMOTO  
Programmed by: Susumu SHIMAMOTO
5. Computers:  Complete,  Subprogram,  Others (Please specify: )  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 10 ~~kB~~ ( ~~k~~ ~~B~~ ).  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 500
7. Run time for the test deck:

9. References:

(\*)To be completed by the authors)  
\*\*\*\*\*  
(+)To be completed by the cataloguers)

1. Index number: EN10.017
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number

76-0033

Index Number

EN10.018

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Magnetic field is evaluated using Biot-Savart's law in the cylindrical coordinates.

1. Title of program: Biot-Savart's Law
2. Name of code or routine: ERF  
Subname or version:
3. Type of program:  Complete, MSubprogram,  Others (Please specify: )
4. Authors: Ryuta SAITO, Shogo SEKI, Akio KITSUNEZAKI  
Programmed by: Ryuta SAITO
5. Computers:  FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: kb (or kB).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 60
7. Run time for the test deck:

9. References:

R. Saito et al., JAERI-M 6470 (1976).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: EN10.018
2. Date of registration:
3. Form of catalogued program:  Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
EN40.001

Serial Number  
76-0034

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Beam Trajectories in an Ion Source
2. *Name of code or routine:* IONRB  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Yoshihiro OHARA  
*Programmed by:*
5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) *Size of core memory required:* 107 ~~KB~~ ~~KB~~  
(5-5) *Number of bits in a word:* 32 bits/w.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  MXY plotter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 2800
7. *Run time for the test deck:* 10 min.

8. *Brief description of the program:*

Beam trajectories in an ion source can be calculated for two-dimensional cylindrically symmetric model. The model includes the effects of a finite ion and electron temperature at the emitting surface. The shape and position of the emitting surface is computed self consistently.

9. *References:*

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. *Index number:* EN40.001
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Serial Number  
76-0035

Index Number  
EN50.001

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Shape of an electrode for an air-gap switch is optimized by calculating the electric field by the finite element method. In the course of the calculation mesh points are generated automatically.

1. Title of program: Optimization of Electrode
2. Name of code or routine: GOEDP-FE  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: RYUICHI SHIMADA  
Programmed by:
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming Language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 88 K~~(or 4K)~~ bits/w.  
(5-5) Number of bits in a word:  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 400
7. Run time for the test deck: 300 sec.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: EN50.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:



Serial Number  
76-0036

Index Number  
EN50.002

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Parameters of multi-stage inductive energy storage circuits subject to various constraints are optimally determined by a simplex method. Circuit analysis including the plasma is made for the two cases: (1) the plasma resistance given as a function of time, and (2) the plasma resistance determined from a zero-dimensional plasma model.

1. *Title of program:* Optimal Design of a Multi-Stage Inductive Energy Storage System  
2. *Name of code or routine:* POPSOT  
*Subname or version:*  
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )  
4. *Authors:* Keiji TANI, Tomofumi KOBAYASHI, Sanae TAMURA  
*Programmed by:* Keiji TANI, Tomofumi KOBAYASHI

5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) *Size of core memory required:* 128  $kw$  (or  $kB$ ).  
(5-5) *Number of bits in a word:* bits/w.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY platten,  Others (Please specify: )  
6. *Number of cards in combined program and test deck:* 4500  
7. *Run time for the test deck:* 900 sec.

9. *References:*  
(To be completed by the authors)  
(To be completed by the cataloguers)  
1. *Index number:* EN50.002  
2. *Date of registration:*  
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )  
4. *Key words:*  
5. *Laboratory or group:*  
6. *Remarks:*

Index Number  
EN50.003

Serial Number  
76-0037

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Transient processes in an air-core transformer circuit and field distributions are calculated.

1. Title of program: Poloidal Coil System (Fortran)
2. Name of code or routine: POLSINZ  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Ryuichi SHIMADA  
Programmed by:
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 120 k~~W~~ (k~~B~~ B).  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  MXV platter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 2000
7. Run time for the test deck: 900 sec.

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: EN50.003
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
EN50.004

Serial Number  
76-0038

COMPUTER PROGRAM SUMMARY

1. Title of program: Poloidal Coil System (ADSL)
2. Name of code or routine: POLSIMI  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Ryuichi SHIMADA  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: ADSL )  
(5-4) Size of core memory required: 150 k $\times$ 10<sup>3</sup> #B).  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: 0  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 750
7. Run time for the test deck: 900 sec.

8. Brief description of the program:

Transients in an air-core transformer circuit is analyzed by taking account of the surrounding external conductors (e.g., a vacuum vessel without breaks). FACOM ADSL equivalent to IBM CSMP is used to describe the external circuitry.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(-To be completed by the cataloguers)

1. Index number: EN50.004
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
EN50.005

Serial Number  
76-0039

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Inductance and Magnetic Force of Poloidal Field Coils
2. *Name of code or routine:* POFI  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Tomofumi KOBAYASHI  
*Programmed by:* Tomofumi KOBAYASHI
5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) *Size of core memory required:* 50 ~~kw~~ ~~KB~~.  
(5-5) *Number of bits in a word:* bits/w.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 750
7. *Run time for the test deck:*

8. *Brief description of the program:*

Self and mutual couplings of poloidal field coils and force acting on the conductor are calculated. In calculating the self-inductance a conductor of rectangular cross-section is assumed, while the mutual inductance is calculated assuming filamentary conductors.

9. *References:*

T. Kobayashi et al., JAERI-M 5898 (1974).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. *Index number:* EN50.005
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
EN70.001

Serial Number  
76-0040

COMPUTER PROGRAM SUMMARY

1. Title of program: Two-Dimensional Heat Analysis
2. Name of code or routine:  
Subname or version:
3. Type of program: MComplete, []Subprogram,  
[]Others (Please specify: ) .
4. Authors: Tetsuo TAKASIMA, Osamu MORISHITA  
Programmed by: Tetsuo TAKASIMA
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language: []PL/I, []Fortran, []ALGOL, []Assembler,  
[]Others (Please specify: ) .  
(5-4) Size of core memory required: 64 kw (or kb).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure: []Yes, MNo.  
(5-7) Magnetic disks: MYes, []No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, MXY plotter,  
[]Others (Please specify: ) .
6. Number of cards in combined program and test deck:
7. Run time for the test deck: 5 sec.

8. Brief description of the program:

The temperature distribution in a solid element is obtained from the numerical solution of the following equation:

$$\rho C_p \frac{\partial T}{\partial t} = K_{xx} \frac{\partial^2 T}{\partial x^2} + K_{yy} \frac{\partial^2 T}{\partial y^2} + q .$$

9. References:

- (+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. Index number: EN70.001
  2. Date of registration:
  3. Form of catalogued program:  
[]Source tape, []Source file, []PS file, []EB file,  
[]Others (Please specify: ) .
  4. Key words:
  5. Laboratory or group:
  6. Remarks:

(1) CODE WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

<u>SUBSIDIARY INDEX NUMBER</u>	<u>PRINCIPAL INDEX NUMBER</u>
EN30.001	RD00.001
EN30.002	SP00.001

(2) UNPUBLISHED CODES

<u>INDEX NUMBER</u>	<u>TITLE</u>
EN10.019	TWO DIMENSIONAL PROBLEM OF MAGNETIC FIELD

IO : INPUT AND OUTPUT

CONTENTS

\* IO30.001 - IO30.003

Index Number  
1030.001

Serial Number  
76-0042

COMPUTER PROGRAM SUMMARY

1. Title of program: Graph of Displacement Vectors with Arrows
2. Name of code or routine: PLOTG  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: 1.)
4. Authors: Genichi KURITA  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: 1.)  
(5-4) Size of core memory required: 102 K<sub>10</sub> (or K<sub>8</sub>).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY platter,  
 Others (Please specify: 1.)
6. Number of cards in combined program and test deck: 2200
7. Run time for the test deck: 15 sec.

8. Brief description of the program:

Plot the two dimensional arrowheaded displacement vectors from the equilibrium positions.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: 1030.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  IS file,  IS file,  
 Others (Please specify: 1.)
4. Key words:
5. Laboratory or group:
6. Remarks:



Index Number  
I030.002

Serial Number  
76-0043

COMPUTER PROGRAM SUMMARY

1. Title of program: Visualization of 3-dimensional Objects
2. Name of code or routine: PLOTD3  
Subname or version:
3. Type of program: Complete, Subprogram,  
Others (Please specify: )
4. Authors: Toshihide TSUNEMATSU  
Programmed by:
5. Computers  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming Language: PL/I, Fortran, ALGOL, Assembler,  
Others (Please specify: )  
(5-4) Size of core memory required: 30 kb (or kb)  
(5-5) Number of bits in a word: 32 ~ 36 bits/w.  
(5-6) Overlay structure: Yes, No.  
(5-7) Magnetic disks: Yes, No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
Card punch, Graphic display, Graphic COM, MXY plotter,  
Others (Please specify: )
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

8. Brief description of the program:

Three dimensional objects are plotted. Elimination of hidden lines is possible.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: I030.002
2. Date of registration:
3. Form of catalogued program:  
Source tape, Source file, PS file, EB file,  
Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0044

Index Number  
1030.003

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Subroutine for drawing the contour line on a graphic display and/or XY plotter.

Input data :  $Z = f(X_i, Y_j)$  at each mesh point  $(X_i, Y_j)$

Output data: Contour line of  $Z = f(X, Y)$  on X-Y plane.

1. Title of program: Contour Line
2. Name of code or routine: CONTOUR  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Shogo SEKI  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: kb (or kB).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 166
7. Run time for the test deck:

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: 1030.003
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

MP : MATHEMATICAL PROGRAMMING

CONTENTS

\* MP30.001

-----  
\* MP20.001 - MP20.006

Index Number  
MP30.001

Serial Number  
76-0045

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:  
One dimensional dynamic programming code which determines the optimum orbit by a backward scheme.

1. Title of program: Dynamic Programming
2. Name of code or routine: DYNAMICI  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Masao OKAMOTO  
Programmed by: Masao OKAMOTO
5. Computers  
(5-1) Name of computers: NEAC-7000  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 30 kb (or KB).  
(5-5) Number of bits in a word: bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 500
7. Run time for the test deck: 1 min.

9. References:  
R.E. Bellman and S.E. Dreyfus, "Applied Dynamic Programming", Princeton University Press, Princeton, New Jersey, 1962.  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)  
1. Index number: MP30.001, PS20.004  
2. Date of registration:  
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  JEB file,  
 Others (Please specify: )  
4. Key words:  
5. Laboratory or group:  
6. Remarks:

(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

<u>SUBSIDIARY INDEX NUMBER</u>	<u>PRINCIPAL INDEX NUMBER</u>
MP20.001	DP20.013
MP20.002	DP20.014
MP20.003	EN10.006
MP20.004	EN10.007
MP20.005	EN10.003

NA : NUMERICAL ANALYSIS

CONTENTS

- \* NA10.001
- \* NA14.001 - NA14.002
- \* NA30.001 - NA30.004
- \* NA70.001 - NA70.002
- \* NA90.001
- 
- \* NA30.005
- \* NA60.001 - NA60.002

Serial Number  
76-0046

Index Number  
NA10.001

8. Brief description of the program:

Calculate inverse of a matrix. Large scale problems can be solved if the band width of the matrices is sufficiently small.

COMPUTER PROGRAM SUMMARY

1. Title of program: Large Scale Matrix Inversion
2. Name of code or routine: LMATINV  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Tatsuoki TAKEDA  
Programmed by:
5. Computers: FACOM 230/75, IBM 360/195  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
 (5-4) Size of core memory required: 140 kbit (or kbit).  
 (5-5) Number of bits in a word: 36, 32 bits/w.  
 (5-6) Overlay structure:  Yes,  No.  
 (5-7) Magnetic disks:  Yes,  No.  
 (5-8) Number of magnetic tapes required:  
 (5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 1000
7. Run time for the test deck:

9. References:

(To be completed by the authors)  
 \*\*\*\*\*  
 (To be completed by the cataloguers)

1. Index number: NA10.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  IEB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0047

Index Number  
NA14.001

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
The generalized eigenvalue problem,  
 $AX = \lambda Bx$  (1)  
is solved by iterative method. Here A and B are symmetric matrices, and B is positive definite.

1. *Title of program:* Iterative Solution of Generalized Eigenvalue Problem
2. *Name of code or routine:* GEIGEN  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Toshihide TSUNEMATSU and Tatsuoki TAKEDA  
*Programmed by:* Toshihide TSUNEMATSU
5. *Computers*  
*(5-1) Name of computers:* FACOM 230/75,  
*(5-2) Operating systems:*  
*(5-3) Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
*(5-4) Size of core memory required:* 128 ~ 256 kb (or ~~kb~~ MB).  
*(5-5) Number of bits in a word:* bits/w.  
*(5-6) Overlay structure:*  Yes,  No.  
*(5-7) Magnetic disks:*  Yes,  No.  
*(5-8) Number of magnetic tapes required:*  
*(5-9) Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 400
7. *Run time for the test deck:*

9. *References:*  
T. Tsunematsu and T. Takeda, to be submitted in J. Comp. Phys.  
  
(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)  
\*\*\*\*\*
1. *Index number:* NA14.001
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*



Serial Number  
76-0048

Index Number  
NA14.002

8. Brief description of the program:

Solve a general eigenvalue problem of matrices ( $Ax = \lambda Bx$ ) by using the inverse subspace iteration method. Large scale problems can be solved if the band width of the matrices is sufficiently small.

COMPUTER PROGRAM SUMMARY

1. Title of program: General Eigen-Problem by Inverse Subspace Iteration

2. Name of code or routine: GEPSI

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Authors: Tatsuoki TAKEDA

Programmed by:

5. Computers: FACOM 230/75, IBM 360/195

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 140 Kbytes

(5-5) Number of bits in a word: 36, 32 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 1000

7. Run time for the test deck:

9. References:

(+To be completed by the authors) \*\*\*\*\*  
(+To be completed by the cataloguers) \*\*\*\*\*

1. Index number: NA14.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0049

Index Number  
NA30.001

8. *Brief description of the program:*

Construct discrete orthogonal coordinates by using the algorithm of Potter and Tuttle and generate a set of triangular or rectangular meshes for an f.e.m. calculation.

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Mesh Generator for Calculation of 2D Tokamak Evolution

2. *Name of code or routine:* DYNATOR-MESH

*Subname or version:*

3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )

4. *Authors:* Tatsuoki TAKEDA

*Programmed by:*

5. *Computers*

(5-1) *Name of computers:* FACOM 230/75, IBM 360/195

(5-2) *Operating systems:*

(5-3) *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) *Size of core memory required:* 80 kbit (or kb).

(5-5) *Number of bits in a word:* 32, 36 bits/word.

(5-6) *Overlay structure:*  Yes,  No.

(5-7) *Magnetic disks:*  Yes,  No.

(5-8) *Number of magnetic tapes required:* 0

(5-9) *Other peripherals used:*

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. *Number of cards in combined program and test deck:* 1000

7. *Run time for the test deck:*

9. *References:*

D.E. Potter and G.H. Tuttle, J. Comp. Phys. 13 (1973) 483.

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* NA30.001, PS10.003, PS80.002

2. *Date of registration:*

3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. *Key words:*

5. *Laboratory or group:*

6. *Remarks:*

Serial Number  
76-0050

Index Number  
NA30.002

8. Brief description of the program:

The equation  $dy/dt = Ay$  ( $y$ : vector,  $A$ : matrix) is solved by using the eigenvalues and eigenvectors of  $A$ . The Gauss elimination, double QR, or inverse iteration method is employed.

COMPUTER PROGRAM SUMMARY

1. Title of program: Eigenvalues and Eigenvectors
2. Name of code or routine: EIGV  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Tsuneo AMANO, Masao OKAMOTO  
Programmed by: Tsuneo AMANO, Masao OKAMOTO
5. Computers:  FACOM 230/75  
 Operating systems:  
 Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 1000
7. Run time for the test deck: 1 min.
9. References: J.H. Wilkinson, "The Algebraic Eigenvalue Problem", (Clarendon Press, Oxford, 1965).  
(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)
1. Index number: NA30.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0051

Index Number  
NA30.003

8. Brief description of the program:

Solve the equation  $dy/dt = Ay$ , (y: vector, A: asymmetric real tri-diagonal matrix).

COMPUTER PROGRAM SUMMARY

1. Title of program: Asymmetric Real Tri-Diagonal Matrix
2. Name of code or routine: EICTRI  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Tsuneo AMANO, Masao OKAMOTO  
Programmed by: Tsuneo AMANO, Masao OKAMOTO
5. Computers: FACOM 230/75  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
 (5-4) Size of core memory required: 50 k(10<sup>3</sup> kB).  
 (5-5) Number of bits in a word: bits/w.  
 (5-6) Overlay structure:  Yes,  No.  
 (5-7) Magnetic disks:  Yes,  No.  
 (5-8) Number of magnetic tapes required:  
 (5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 800
7. Run time for the test deck: 1 min.

9. References:

- Ralston and Wilf, "Mathematical Methods for Digital Computers" (John Wiley & Sons 1959).  
 (+To be completed by the authors)  
 \*\*\*\*\*  
 (-To be completed by the cataloguers)
1. Index number: NA30.003
  2. Date of registration:
  3. Form of catalogued program:  Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
  4. Key words:
  5. Laboratory or group:
  6. Remarks:

Index Number  
NA30.004

Serial Number  
76-0052

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

A formal solution of the equation  $dy/dt = Ay$  ( $y$ : vector,  $A$ : matrix)  $y = e^{At}y_0$  is evaluated by a continued fraction algorithm.

1. Title of program: Continued Fraction Algorithm
2. Name of code or routine: REXP  
Subname or version:
3. Type of program: [ ] Complete, [M] Subprogram, [ ] Others (Please specify: )
4. Authors: Masao OKAMOTO  
Programmed by: Masao OKAMOTO
5. Computers: FACOM 230/75  
[5-1] Name of computers:  
[5-2] Operating systems:  
[5-3] Programming language: [ ] PL/I, [M] Fortran, [ ] ALGOL, [ ] Assembler, [ ] Others (Please specify: )  
[5-4] Size of core memory required: 50 kilobytes  
[5-5] Number of bits in a word: bits/w.  
[5-6] Overlay structure: [ ] Yes, [M] No.  
[5-7] Magnetic disks: [ ] Yes, [M] No.  
[5-8] Number of magnetic tapes required:  
[5-9] Other peripherals used: [ ] Card punch, [ ] Graphic display, [ ] Graphic COM, [ ] XY plotter, [ ] Others (Please specify: )
6. Number of cards in combined program and test deck: 500
7. Run time for the test deck: 1 min.

9. References:

(\*) To be completed by the authors  
\*\*\*\*\*  
(v) To be completed by the cataloguers

1. Index number: NA30.004
2. Date of registration:
3. Form of catalogued program: [ ] Source tape, [ ] Source file, [ ] RB file, [ ] EB file, [ ] Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0053

Index Number  
NA90.001

8. Brief description of the program:

Evaluate the contour integral  $(2\pi i)^{-1} \int_C dz f'(z)/f(z)$  and give the difference between numbers of zeros and poles of  $f(z)$  inside the contour  $C$ .

COMPUTER PROGRAM SUMMARY

1. Title of program: Cauchy Integral
2. Name of code or routine: CAUCHY  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Masao OKAMOTO, Tsuneo AMANO  
Programmed by: Tsuneo AMANO, Masao OKAMOTO
5. Computers:  FACOM 230/75  
 Operating systems:  
 Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
 Size of core memory required: 30 kw (or kb).  
 Number of bits in a word: bits/w.  
 Overlay structure:  Yes,  No.  
 Magnetic disks:  Yes,  No.  
 Number of magnetic tapes required:  
 Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 200
7. Run time for the test deck: 1 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: NA90.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

<u>SUBSIDIARY INDEX NUMBER</u>	<u>PRINCIPAL INDEX NUMBER</u>
NA30.005	PS80.001
NA60.001	PS20.006
NA60.002	PS20.012

(2) UNPUBLISHED CODES

<u>INDEX NUMBER</u>	<u>TITLE</u>
NA70.001	TOROIDAL RING FUNCTION
NA70.002	PLASMA DISPERSION FUNCTION

PF : PLASMA PHYSICS AND FUSION RESEARCH

CONTENTS

- \* PF10.001 - PF10.007
- \* PF20.001 - PF20.006
- \* PF30.001 - PF30.004
- \* PF40.001 - PF40.002
- \* PF50.001
- \* PF70.001 - PF70.002
- \* PF80.001 - PF80.002
- 
- \* PF30.005



Serial Number  
76-0056

Index Number  
PF10.001

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Toroidal Plasma Equilibria are calculated by replacing toroidal plasma current by a set of ring currents. The equation of MHD equilibrium is transformed into an integral equation. The code is applicable for a wide class of equilibria, i.e. circular/noncircular, with/without shell etc.

1. *Title of program:* Free Boundary MHD Equilibrium
2. *Name of code or routine:* NIRVANA  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  Others (Please specify: )
4. *Authors:* HIROMASA NINOMIYA, YASUO SUZUKI, AKIHISA KAMEARI  
*Programmed by:* HIROMASA NINOMIYA

5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )
6. *Size of core memory required:* 62 k(0.8 kb).
7. *Number of bits in a word:* 36 bits/w.
8. *Overlay structure:*  Yes,  No.
9. *Magnetic disks:*  Yes,  No.
10. *Number of magnetic tapes required:*
11. *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
12. *Number of cards in combined program and test deck:* 1300
13. *Run time for the test deck:* 30 sec.

9. *References:*  
Y. Suzuki, A. Kameari, H. Ninomiya, M. Masuzaki and H. Toyama: in Plasma Physics and Controlled Nuclear Fusion Research I, IAEA, Vienna (1975) 411.  
H. Ninomiya, Y. Suzuki and A. Kameari: JAERI-M 6025 and 6026.  
(To be completed by the authors) \*\*\*\*\*  
(To be completed by the cataloguers)
1. *Index number:* PF10.001
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RS file,  EB file,  Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Serial Number  
76-0057

Index Number  
PF10.002

8. Brief description of the program:

The MHD equilibrium of toroidal plasma is calculated. The alternating direction implicit method coupled with the 3-step iteration scheme is improved by addition of the appointment process of plasma parameters (plasma position, shape and current).

COMPUTER PROGRAM SUMMARY

1. Title of program: MHD Equilibrium of Toroidal Plasma
2. Name of code or routine: EQUO  
Subname or version:
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Akihisa KAMEARI, Hiromasa NINOMIYA, Yasuo SUZUKI  
Programmed by: Akihisa KAMEARI
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 80 kb (or kb)  
(5-5) Number of bits in a word: 32 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 1800
7. Run time for the test deck: 10 min.

9. References:

- Y. Suzuki, A. Kameari, H. Ninomiya, M. Masuzaki and H. Toyama; IAEA-CN-33/All-2 (Tokyo Conference, 1974).  
A. Kameari, Y. Suzuki and H. Ninomiya; JAERI-M 6027 and 6028  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF10.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
PF10.003

Serial Number  
76.0058

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Calculate MHD equilibrium of a toroidal plasma by the combination of finite element method and nonlinear programming

1. *Title of program:* MHD Equilibrium by FEM & NLP
2. *Name of code or routine:* MHDEQU10  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Tatsuoki TAKEDA  
*Programmed by:*
5. *Computers*  
[5-1] *Name of computers:* FACOM 230/75  
[5-2] *Operating systems:*  
[5-3] *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
[5-4] *Size of core memory required:* 110 kW (4K).  
[5-5] *Number of bits in a word:* 36 bits/w.  
[5-6] *Overlay structure:*  Yes,  No.  
[5-7] *Magnetic disks:*  Yes,  No.  
[5-8] *Number of magnetic tapes required:* 0  
[5-9] *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY platter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 1053
7. *Run time for the test deck:* 10.1 sec.

9. *References:*  
T. Takeda; Proc. of 2nd European Conference on Computational Physics F3 (1976).  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. *Index number:* PF10.003, MF20.005
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Serial Number  
76.0059

Index Number  
PF10.004

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Toroidal plasma equilibrium with conducting shell with or without poloidal openings is calculated by the ADI method. The contour of  $\psi$  (poloidal flux function) and equilibrium quantities are obtained.

1. Title of program: Toroidal Plasma Equilibrium by ADI Method
2. Name of code or routine: PLADI  
Subname or version: PLADI2
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )
4. Authors: Akio KITSUNEZAKI, Hikosuke MAEDA, Yasuo SHIMOMURA  
Programmed by: Akio KITSUNEZAKI
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: K (or kb).  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: 2  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: ~3000
7. Run time for the test deck: 60 sec.

9. References:

- A. Kitsunezaki et al., Nuclear Fusion 14 (1974) p.747.
- A. Kitsunezaki et al., (unpublished)

(+To be completed by the authors)  
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(-To be completed by the cataloguers)

1. Index number: PF10.004
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  ES file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0060

Index Number  
PF10.005

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Equilibrium of axisymmetric toroidal plasma with free boundary is obtained interactively using a graphic display. Flux function  $\psi$ , externally-applied vertical field profiles, and some equilibrium quantities (major radius, minor radius, aspect ratio, ellipticity,  $\beta_p$  etc.) are calculated.

1. Title of program: Tokamak Equilibrium on Graphic Display
2. Name of code or routine: TOKAMAK  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )

4. Authors: Shogo SEKI, Akio KITSUNEZAKI, Ryuta SAITO

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )

(5-4) Size of core memory required: 128 k $\Psi$  (4\* k $\Psi$ ).

(5-5) Number of bits in a word: 36 bits/W.

(5-6) Overlay structure: []Yes, MNo.

(5-7) Magnetic disks: []Yes, MNo.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

[]Card punch, MGraphic display, MGraphic COM, MXY plotter, []Others (Please specify: ).

6. Number of cards in combined program and test deck: 3088

7. Run time for the test deck: 2 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF10.005
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []RS file, []EB file,  
[]Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0061

Index Number  
PF10.006

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Equilibrium of axisymmetric toroidal plasma with free boundary is calculated by series expansion using the associated Legendre function.

Flux function  $\psi$  (print and XY plot) and some equilibrium values (major radius, minor radius, major radius of magnetic axis, aspect ratio, ellipticity and  $\beta_p$ ) are obtained.

1. Title of program: Tokamak Equilibrium by Legendre Expansion Method

2. Name of code or routine: TOKAMAK

Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: )

4. Authors: Shogo SEKI, Hikosuke MAEDA, Akio KITSUNEZAKI and Ryuta SAITO

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming Language: []PL/I, []Fortran, []ALGOL, []Assembler, []Others (Please specify: )

(5-4) Size of core memory required: 54 kw (4\* kb).

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure: []Yes, []No.

(5-7) Magnetic disks: []Yes, []No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used: []Card punch, []Graphic display, MGraphic COM, MXY plotter, []Others (Please specify: )

6. Number of cards in combined program and test deck: 1285

7. Run time for the test deck: 2 min.

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: PF10.006

2. Date of registration:

3. Form of catalogued program: []Source tape, []Source file, []RS file, []EB file, []Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
PF10.007

Serial Number  
76-0062

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Equilibrium of non-circular, free-boundary plasma is obtained by use of fourier series.

1. Title of program: Equilibrium of Noncircular, Free Boundary Plasma
2. Name of code or routine: EASHS  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: 1.)
4. Author: Teruaki SHOJI  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: ).  
(5-4) Size of core memory required: 30 k(10<sup>3</sup> #B).  
(5-5) Number of bits in a word: 32 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY platter,  
 Others (Please specify: ).
6. Number of cards in combined program and test deck:
7. Run time for the test deck:

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF10.007
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: ).
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0063

Index Number  
PF20.001

Date May 27, 1976

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Stability criteria for localized instabilities for ideal and resistive modes are calculated for general axisymmetric configurations. Stored data of equilibrium configuration at mesh points is used to calculate the stability criteria on each pressure surface.

1. Title of program: Stability of Toroidal Plasma
2. Name of code or routine: STBLTY  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: ).
4. Author(s): Yasuo SUZUKI, Akihisa KAMFARI, Hiromasa NINOMIYA  
Programmed by:
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: ).  
(5-4) Size of core memory required: 64 kword kBT.  
(5-5) Number of bits in a word: 36 bits/w.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: ).
6. Number of cards in combined program and test deck: 1600
7. Run time for the test deck: 5 sec.

9. References:

- L. S. Solov'ev; Sov. Phys.-JETP 26,400 (1968).  
A. H. Glasser, J. M. Greene and J. L. Johnson; Phys. Fluids 18,875 (1975).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. Index number: PF20.001
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  ES file,  
 Others (Please specify: ).
4. Key words:
5. Laboratory or group:
6. Remarks:



Serial Number  
76-0064

Index Number  
PF20.002

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Using a variational method the stability conditions of a plasma with respect to its rigid vertical displacement and horizontal expansion are calculated for a Tokamak with magnetic limiters of non-circular plasma cross-section.

1. Title of program: Positional Instability
2. Name of code or routine: POSINSTA  
Subname or version:
3. Type of program: M Complete, [ ] Subprogram, [ ] Others [Please specify: ]
4. Authors: Hiromasa NINOMIYA, Yasuo SUZUKI, Akihisa KAMEARI  
Programmed by: Hiromasa NINOMIYA
5. Computers  
[5-1] Name of computers: FACOM 230/75  
[5-2] Operating systems:  
[5-3] Programming language: [ ] PL/I, MFortran, [ ] ALGOL, [ ] Assembler, [ ] Others [Please specify: ]  
[5-4] Size of core memory required: 230 kb (or kb)  
[5-5] Number of bits in a word: 36 bits/w.  
[5-6] Overlay structure: [ ] Yes, MNo.  
[5-7] Magnetic disks: MYes, [ ] No.  
[5-8] Number of magnetic tapes required:  
[5-9] Other peripherals used:  
[ ] Card punch, [ ] Graphic display, [ ] Graphic COM, [ ] XV plotter, [ ] Others [Please specify: ]
6. Number of cards in combined program and test deck: 700
7. Run time for the test deck: 160 sec.

9. References:

(\*) To be completed by the authors  
\*\*\*\*\*  
(+) To be completed by the cataloguers

1. Index number: PF20.002
2. Date of registration:
3. Form of catalogued program:  
[ ] Source tape, [ ] Source file, [ ] RB file, [ ] EB file, [ ] Others [Please specify: ]
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
PF20.003

Serial Number  
76-0065

### COMPUTER PROGRAM SUMMARY

#### 8. Brief description of the program:

Growth rates and eigen-functions of MHD instabilities of axisymmetric toroidal plasmas with arbitrary plasma current distribution are obtained by solving a set of linearized mhd equations as an initial value problem.

1. Title of program: Two Dimensional MHD Stability
2. Name of code or routine: TWODMHD  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )
4. Authors: Genichi KURITA, Tsuneo AMANO  
Programmed by: Genichi KURITA
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language: []PL/1, MFortran, []ALGOL, []Assembler, []Others (Please specify: )  
(5-4) Size of core memory required: 240 kb(± kb).  
(5-5) Number of bits in a word: 36 bits/w.  
(5-6) Overlay structure: []Yes, MNo.  
(5-7) Magnetic disks: []Yes, MNo.  
(5-8) Number of magnetic tapes required: 0  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, []XY plotter, []Others (Please specify: )
6. Number of cards in combined program and test deck: 4000
7. Run time for the test deck: 2 min.

#### 9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF20.003
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []FB file, []EB file, []Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0066

Index Number  
PF20.004

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Calculate growth rate of MHD instability of a Cylindrical Plasma by FEM. In this code, vacuum energy is also calculated numerically.

1. Title of program: Stability of Cylindrical Plasma by FEM (1)
2. Name of code or routine: STABCP-V6  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )
4. Authors: Tatsuoki TAKEDA and Yasuo SHIMOMURA  
Programmed by:
5. Computers: FACOM 230/75  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )  
 (5-4) Size of core memory required: 180 kW(≠ kB)  
 (5-5) Number of bits in a word: 36 bits/w.  
 (5-6) Overlay structure: []Yes, MNo.  
 (5-7) Magnetic disks: []Yes, MNo.  
 (5-8) Number of magnetic tapes required: 0  
 (5-9) Other peripherals used:  
 MCard punch, []Graphic display, []Graphic COM, []XY plotter, []Others (Please specify: )
6. Number of cards in combined program and test deck: 798
7. Run time for the test deck: 10.4 sec.

9. References:

T. Takeda, Y. Shimomura, M. Ohta, M. Yoshikawa; JAERI-M 4890 (1972).

(To be completed by the authors)  
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 (To be completed by the cataloguers)

1. Index number: PF20.004
2. Date of registration:
3. Form of catalogued program:  
 []Source tape, []Source file, []RB file, []EB file,  
 []Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0067

Index Number  
PF20.005

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
Calculate growth rate of MHD instability of a cylindrical plasma by Finite Element Method.

1. *Title of program:* Stability of Cylindrical Plasma by FEM (2)
2. *Name of code or routine:* STEFEM1  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Tatsuoki TAKEDA  
*Programmed by:*
5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) *Size of core memory required:* 110 KB (or KB)  
(5-5) *Number of bits in a word:* 36 bits/w.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:* 0  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XV platter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 1485
7. *Run time for the test deck:* 46.1 sec.

9. *References:*  
T. Takeda, Y. Shimomura, M. Ohta, M. Yoshikawa; Phys. Fluids 15  
(1972) 2193.  
(To be completed by the authors)  
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(To be completed by the cataloguers)  
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1. *Index number:* OF20.005  
2. *Date of registration:*  
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )  
4. *Key words:*  
5. *Laboratory or group:*  
6. *Remarks:*

Index Number  
PF20.006

Serial Number  
76-0068

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Dissipative drift mode in tokamak plasmas
2. *Name of code or routine:* DDRIFF  
*Subname or version:*
3. *Type of program:*  Complete,  Subprogram,  
 Others (Please specify: )
4. *Authors:* Masatoshi TANAKA  
*Programmed by:*
5. *Computers*  
(5-1) *Name of computers:* FACOM 230/60  
(5-2) *Operating systems:*  
(5-3) *Programming language:*  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) *Size of core memory required:* 32 K0 (0\* KB).  
(5-5) *Number of bits in a word:* bits/W.  
(5-6) *Overlay structure:*  Yes,  No.  
(5-7) *Magnetic disks:*  Yes,  No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. *Number of cards in combined program and test deck:* 400
7. *Run time for the test deck:* 1 min.

8. *Brief description of the program:*

Drift dissipative modes with  $m \gg 1$  in a toroidal system is studied by taking account of a ballooning effect. Fourier series representation of the eigen mode yields a dispersion relation involving continued fractions, which solved numerically by a steepest descent, method.

9. *References:*

M. Tanaka and T. Tuda, Kokuyugo Kenkyu, 29, suppl. 7 (1972), 27.

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. *Index number:* PF20.006
2. *Date of registration:*
3. *Form of catalogued program:*  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Serial Number  
76-0069

Index Number  
PF30.001

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Stationary density distributions of impurities and related energy losses in a tokamak plasmas. Cylindrical fluid-model. Classical and anomalous diffusions of impurity ions including inward diffusion are considered as well as ionization-recombination processes. Related energy losses as ionization, excitation and bremsstrahlung caused by carbon, oxygen or iron impurities can be calculated.

1. Title of program: Stationary Density Distributions of Impurities and Related Energy Losses.

2. Name of code or routine: IMPRTYS

Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: )

4. Authors: Teruhiko YAZIMA, Yukiharu NAKAMURA

Programmed by:

5. Computers

[5-1] Name of computers: FACOM 230/75

[5-2] Operating systems:

[5-3] Programming language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )

[5-4] Size of core memory required: variable 640 (or 88).

[5-5] Number of bits in a word: 71 bits/w.

[5-6] Overlay structure: []Yes, MNo.

[5-7] Magnetic disks: MYes, []No.

[5-8] Number of magnetic tapes required:

[5-9] Other peripherals used:

[]Card punch, []Graphic display, MGraphic COM, []XY plotter, []Others (Please specify: )

6. Number of cards in combined program and test deck: 2100

7. Run time for the test deck: 10 min.

9. References:

T. Tazima, K. Inoue and Y. Nakamura; JAERI-M 6606 (1976).

(+To be completed by the authors)  
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(+To be completed by the cataloguers)

1. Index number: PF30.001

2. Date of registration:

3. Form of catalogued program:

[]Source tape, []Source file, []RB file, []EB file, []Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0070

Index Number  
PF30.002

### COMPUTER PROGRAM SUMMARY

#### 8. Brief description of the program:

Simultaneous equations describing diffusion process of impurity ions as well as the successive ionization processes are solved by finite Hankel transform assuming a uniform background plasma.

1. Title of program: Impurity Distributions in a Uniform Plasma

2. Name of code or routine: IMPUNIF

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Author: Masatoshi TANAKA  
Programmed by: Masatoshi TANAKA

5. Computers: (5-1) Name of computers: FACOM 230/60

(5-2) Operating systems:

(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 32 K(10<sup>3</sup> #B).

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plottter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 200

7. Run time for the test deck: 0.1 min.

#### 9. References:

M. Tanaka, M. Yoshikawa, K. Inoue and T. Tazima, JAERI-M 4961 (1972).

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF30.002

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0071

Index Number  
PF30.003

Date June 12, 1976

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Calculate the time evolution of radial profiles of impurities in a tokamak plasma. The impurity diffusion equations with ionization and recombination are solved as an eigenvalue problem.

1. Title of program: Impurity Evolution Code (I)
2. Name of code or routine: IMPEIGV  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Masao OKAMOTO  
Programmed by: Masao OKAMOTO
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )
- (5-4) Size of core memory required: 120 kW (or kB).
- (5-5) Number of bits in a word: 36 bits/w.
- (5-6) Overlay structure:  Yes,  No.
- (5-7) Magnetic disks:  Yes,  No.
- (5-8) Number of magnetic tapes required:
- (5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 2000
7. Run time for the test deck: 15 min.

9. References:  
T. Amano and M. Okamoto; JAERI-M 6143 (1975).

(\*) To be completed by the authors  
\*\*\*\*\*  
(\*) To be completed by the cataloguers

1. Index number: PF30.003, PS60.007
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:



Serial Number  
76-0072

Index Number  
PF30.004

8. *Brief description of the program:*  
Calculate the time evolution of the radial profiles of impurities. Impurity diffusion equations with ionization and recombination are solved by Hamming's predictor-corrector method.

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Impurity Evolution Code (2)
2. *Name of code or routine:* IMPHPCG  
*Subname or version:*
3. *Type of program:* MComplete, []Subprogram, []Others (Please specify: )
4. *Authors:* Masao OKAMOTO  
*Programmed by:* Masao OKAMOTO
5. *Computers*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:* []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )  
(5-4) *Size of core memory required:* 70 K[or #B].  
(5-5) *Number of bits in a word:* 36 bits/w.  
(5-6) *Overlay structure:* []Yes, MNo.  
(5-7) *Magnetic disks:* []Yes, MNo.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
[]Card punch, []Graphic display, []Graphic COM, MXY plotter, []Others (Please specify: )
6. *Number of cards in combined program and test deck:* 3000  
*Run time for the test deck:* 20 min.
9. *References:*  
M. Okamoto and T. Amano; JAERI-M 6343(1975).  
[\*To be completed by the authors]  
[+To be completed by the cataloguers]
1. *Index number:* PF30.004, PS60.008
2. *Date of registration:*
3. *Form of catalogued program:*  
[]Source tape, []Source file, []RB file, []EB file, []Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
PF40.001

Serial Number  
76-0073

COMPUTER PROGRAM SUMMARY

1. Title of program: Propagation of Lower Hybrid Wave in a Tokamak

2. Name of code or routine: LHWFO

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Masafumi AZUMI  
Programmed by: Masafumi AZUMI

5. Computers  
(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )

(5-4) Size of core memory required: 630 (or 66).

(5-5) Number of bits in a word: bits/W.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck: ~500

7. Run time for the test deck: 5 min.

8. Brief description of the program:

The ray equations

$$\frac{d\mathbf{r}}{dt} = \frac{\partial \omega}{\partial \mathbf{k}}; \quad \frac{d\mathbf{k}}{dt} = -\frac{\partial \omega}{\partial \mathbf{r}}$$

are solved by the predictor-corrector method. The dispersion relation is derived in the fluid approximation.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF40.001

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
PF40.002

Serial Number  
76-0074

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Dispersion Relation of electrostatic wave near lower hybrid frequency

$$D(\omega, k) = k^2 \lambda_{De}^2 + 1 + \frac{\omega}{k_y v_{te}} Z(\alpha_{e0}) A_{e0} + 1 - \sum_{n=N, N+1} \frac{\omega}{\omega - n\Omega_e} A_{in}$$

$$+ \frac{\omega}{k_y v_{ti}} [Z(\alpha_{iN}) A_{in} + Z(\alpha_{iN+1}) A_{iN+1}] = 0$$

is solved for given k or for given  $k_y$ . Spatial dependences of plasma density, temperature and magnetic field are taken into account.

1. Title of program: Dispersion Relation of Lower Hybrid Wave

2. Name of code or routine: DRLHW

Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: )

4. Authors: Masafumi AZUMI  
Programmed by: Masafumi AZUMI

5. Computers: (5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming Language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )

(5-4) Size of core memory required: kb (or kB).

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure: []Yes, MNo.

(5-7) Magnetic disks: []Yes, MNo.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

[]Card punch, []Graphic display, []Graphic COM, []XY plotter, []Others (Please specify: )

6. Number of cards in combined program and test deck: ~1000

7. Run time for the test deck: 15 min.

9. References:

T. H. Stix, "Theory of Plasma Waves"

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF40.002

2. Date of registration:

3. Form of catalogued program:  
[]Source tape, []Source file, []RB file, []EB file,  
[]Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number

76-0075

Index Number

PF50.001

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Tokamak transport code [TRANSTOK] is applied to the turbulent heating of OV-1 Tokamak. Turbulent cross-field transports are taken into account

1. Title of program: Turbulent Heating
2. Name of code or routine: RANRYU  
 Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )
4. Authors: Shinji TOKUDA, Tsuneo AMANO and Masao OKAMOTO  
 Programmed by: Shinji TOKUDA, Tsuneo AMANO and Masao OKAMOTO
5. Computers  
 [5-1] Name of computers: FACOM 230/75  
 [5-2] Operating systems:  
 [5-3] Programming language: {}PL/I, {}Fortran, {}ALGOL, {}Assembler, []Others (Please specify: )  
 [5-4] Size of core memory required: 120 kb (or kb).  
 [5-5] Number of bits in a word: bits/w.  
 [5-6] Overlay structure: []Yes, []No.  
 [5-7] Magnetic disks: []Yes, []No.  
 [5-8] Number of magnetic tapes required:  
 [5-9] Other peripherals used:  
 []Card punch, []Graphic display, []Graphic COM, []XY plotter, []Others (Please specify: )
6. Number of cards in combined program and test deck: 3,000
7. Run time for the test deck: 1 hour

9. References:

(To be completed by the authors)  
 \*\*\*\*\*  
 (To be completed by the cataloguers)

1. Index number: PF50.001, PS60.009
2. Date of registration:
3. Form of catalogued program:  
 []Source tape, []Source file, []RB file, []EB file,  
 []Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
PF70.001

Serial Number  
76-0076

### COMPUTER PROGRAM SUMMARY

1. Title of program: RF Heating of a Cylindrical Plasma

2. Name of code or routine: RFHEAT

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Author(s): Masatoshi TANAKA

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 128 kb (or kb).

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck: 1300

7. Run time for the test deck: 2 min.

8. Brief description of the program:

Impedance of a rf coil surrounding a cylindrical plasma is calculated in collisionless and cold plasma approximations. Maxwell's equations are integrated by RKG method except in the neighbourhood of the singular surface, where the jumps of the field variables is determined in analytic ways.

9. References:

Yu. N. Dnestrovski et al., Fiz. Plasmi 1 (1975) 623.

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: PF70.001

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  PB file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0077

Index Number  
PF70.002

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

By use of the Monte-Carlo technique, the slowing down process of fast ions in a toroidal system are calculated. Uniform or peaked current model is assumed. The guiding center equations of fast ions are solved by the predictor-corrector method.

1. Title of program: Slowing Down Process of Fast Ions in a Tokamak

2. Name of code or routine: FASTSL

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Author(s): Masafumi AZUMI

Programmed by: Masafumi AZUMI

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: kb (or kB).

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 500

7. Run time for the test deck: 15 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF70.002, PS70.003

2. Date of registration:

3. Form of catalogued program:

Source tape,  Source file,  RB file,  EB file,  Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
PF80.001

Serial Number  
76-0078

COMPUTER PROGRAM SUMMARY

1. Title of program: Simulation of Neutral Transport in a Tokamak

2. Name of code or routine: SNTT

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Masafumi AZUMI  
Programmed by: Masafumi AZUMI

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )

(5-4) Size of core memory required: kW (or kB).

(5-5) Number of bits in a word: bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required: 0

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )

6. Number of cards in combined program and test deck: 1300

7. Run time for the test deck: 15 min.

8. Brief description of the program:

By use of the Monte-Carlo technique, the penetration of neutral particles in a tokamak with arbitrary cross-section is calculated. Energy spectrum of neutrals and line intensity and the Doppler broadening of H $\alpha$  line are obtained for prescribed plasma parameters.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PF80.001, PS70.001

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Serial Number  
76-0079

Index Number  
PF80.002

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Behaviors of neutral particles are simulated with the Monte Carlo method. Parameters of a Tokamak plasma are given. Charge exchange and ionization of neutral particles are computed. Neutral density radial distribution, neutral energy distribution etc. are obtained.

1. Title of program: Monte Carlo Simulation of Neutral Particles in a Tokar

2. Name of code or routine: SIMNTP

Subname or version:

3. Type of program: MComplete, []Subprogram, []Others (Please specify: ).

4. Authors: Tomonori TAKIZUKA  
Programmed by: Tomonori TAKIZUKA

5. Computers: FACOM 230/75

[5-2] Operating systems:

[5-3] Programming language: []PL/I, []Fortran, []ALGOL, []Assembler, []Others (Please specify: ).

[5-4] Size of core memory required: 64 kW (or kB).

[5-5] Number of bits in a word: bits/W.

[5-6] Overlay structure: []Yes, []No.

[5-7] Magnetic disks: []Yes, []No.

[5-8] Number of magnetic tapes required: No

[5-9] Other peripherals used:

{}Card punch, {}Graphic display, {}Graphic COM, {}XY plotter, {}Others (Please specify: ).

6. Number of cards in combined program and test deck: 1300

7. Run time for the test deck: 5 ~ 30 min.

9. References:

Azumi, Takizuka; Nihon Butsuri Gakkai; Nagoya 1976.4, 4P-J-13.

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: PF80.002, PS70.002

2. Date of registration:

3. Form of catalogued program:

{}Source tape, {}Source file, {}RB file, {}EB file, {}Others (Please specify: ).

4. Key words:

5. Laboratory or group:

6. Remarks:



(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

<u>SUBSIDIARY INDEX NUMBER</u>	<u>PRINCIPAL INDEX NUMBER</u>
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PF30.005	
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	DP20.011
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PS : PLASMA SIMULATION

CONTENTS

- \* PS10.001 - PS10.002
- \* PS20.001 - PS20.003
- \* PS60.001 - PS60.006
- \* PS80.001
- \* PS90.001

Serial Number  
76-0080

Index Number  
PS10.001

8. *Brief description of the program:*  
Two fluids equations are solved by Lax-Wendroff scheme.

COMPUTER PROGRAM SUMMARY

1. *Title of program:* Two Dimensional Two Fluids Code (1)
2. *Name of code or routine:* RFLHC  
*Subname or version:*
3. *Type of program:* MComplete, Subprogram,  
Others (Please specify: )
4. *Authors:* Masao OKAMOTO  
*Programmed by:* Masao OKAMOTO
5. *Computers:*  
(5-1) *Name of computers:* FACOM 230/75  
(5-2) *Operating systems:*  
(5-3) *Programming language:* PL/1, Fortran, ALGOL, Assembler, Others (Please specify: )  
(5-4) *Size of core memory required:* 250 ~~KB~~ (or ~~KB~~).  
(5-5) *Number of bits in a word:* 36 bits/w.  
(5-6) *Overlay structure:* Yes, No.  
(5-7) *Magnetic disks:* Yes, No.  
(5-8) *Number of magnetic tapes required:*  
(5-9) *Other peripherals used:*  
Card punch, Graphic display, Graphic COM, XV plotter,  
Others (Please specify: )
6. *Number of cards in combined program and test deck:* 2,000
7. *Run time for the test deck:* 1 hour

9. *References:*  
Richtmyer and Morton; Difference Methods for Initial-Value Problems  
  
(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)
1. *Index number:* PS10.001
2. *Date of registration:*
3. *Form of catalogued program:*  
Source tape, Source file, PB file, EB file,  
Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
PS10.002

Serial Number  
76-0081

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Equations of continuity for electrons and ions and the equation of motion for ions are solved by Lax-Hendroff scheme. Assuming charge neutrality electrostatic potential is calculated.

1. Title of program: Two Dimensional Two Fluids Code (2)
2. Name of code or routine: DRIFT  
Subname or version:
3. Type of program: MComplete,  Subprogram,  
 Others (Please specify: )
4. Authors: Masao OKAMOTO  
Programmed by: Masao OKAMOTO
5. Computers  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) Size of core memory required: 250 kb (or #B).  
(5-5) Number of bits in a word: 36 bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  Others (Please specify: )
6. Number of cards in combined program and test deck: 2,500
7. Run time for the test deck: 1 hour

9. References:

(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)

1. Index number: PS10.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0082

Index Number  
PS20.001

8. Brief description of the program:

Two dimensional calculation of collision-free neutral transport by the Monte Carlo method for arbitrary wall configurations.

COMPUTER PROGRAM SUMMARY

1. Title of program: Neutral Particle in Divertor
2. Name of code or routine: N.P.O.  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Yasuo SHIMOMURA  
Programmed by:
5. Computers:  IBM 230/60  
(5-1) Name of computers: IRM 230/60  
(5-2) Operating systems:  
(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )  
(5-4) Size of core memory required: 70 ~~kw~~ ~~kb~~ bits/w.  
(5-5) Number of bits in a word:  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 500
7. Run time for the test deck: 10 sec.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PS20.001, PS70.004
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RB file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0083

Index Number  
PS20.002

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

A 2-dimensional, guiding-center, electrostatic, finite-size particle code with a binary collision model. Magnetic field should be prescribed.

1. Title of program: Simulation of a Divertor Tokamak
2. Name of code or routine: DIVT  
Subname or version:
3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )
4. Authors: Tomonori TAKIZUKA  
Programmed by: Tomonori TAKIZUKA
5. Computers: FACOM 230/75  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  
 Others (Please specify: )
6. Number of cards in combined program and test deck: 3000  
(5-4) Size of core memory required: 128 ~~kw~~ <sup>kb</sup> bits/W.  
(5-5) Number of bits in a word: bits/W.  
(5-6) Overlay structure:  Yes,  No.  
(5-7) Magnetic disks:  Yes,  No.  
(5-8) Number of magnetic tapes required: No  
(5-9) Other peripherals used:  
 Card punch,  Graphic display,  Graphic COM,  XY plotter,  
 Others (Please specify: )
7. Run time for the test deck:

9. References:  
  
 (\*To be completed by the authors)  
 \*\*\*\*\*  
 (\*To be completed by the cataloguers)
1. Index number: PS20.002
2. Date of registration:
3. Form of catalogued program:  
 Source tape,  Source file,  RS file,  EB file,  
 Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0084

Index Number  
PS20.003

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Particle orbit is calculated in an Axisymmetric or Non-axisymmetric magnetic field. Guiding center equations are integrated by predictor-corrector method.

1. Title of program: Particle Orbit in a Tokamak with Non-axisymmetric Magnetic Fields
2. Name of code or routine: ORBITER  
Subname or version:
3. Type of program: MComplete, [ ]Subprogram, [ ]Others (Please specify: )
4. Authors: Akio KITSUNEZAKI, Ryuta SAITO, Shogo SEKI, Masahiro WAKAYA
- Programmed by:
5. Computers: FACOM 230/75  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language: [ ]PL/I, [ ]Fortran, [ ]ALGOL, [ ]Assembler, [ ]Others (Please specify: )  
 (5-4) Size of core memory required: 95 kb (or kBT).  
 (5-5) Number of bits in a word: 36 bits/w.  
 (5-6) Overlay structure: [ ]Yes, [ ]No.  
 (5-7) Magnetic disks: [ ]Yes, [ ]No.  
 (5-8) Number of magnetic tapes required:  
 (5-9) Other peripherals used: [ ]Card punch, [ ]Graphic display, [ ]Graphic COM, [ ]XY plotter, [ ]Others (Please specify: )
6. Number of cards in combined program and test deck: 1100
7. Run time for the test deck: 10 min.

9. References:

(+To be completed by the authors)  
 \*\*\*\*\*  
 (+To be completed by the cataloguers)

1. Index number: PS20.003
2. Date of registration:
3. Form of catalogued program: [ ]Source file, [ ]IRB file, [ ]EB file, [ ]Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0085

Index Number  
PS60.001

8. Brief description of the program:

Simulate the tokamak plasma with the magnetohydrodynamic fluid model. In order to interpret the tokamak experiments with a dynamic limiter, position of the boundary in the code is movable in time. The main part of the code can be written automatically by using a formula manipulation language (IBM-FORMAC).

COMPUTER PROGRAM SUMMARY

1. Title of program: Simulation of a Tokamak Plasma with a Dynamic Limiter
2. Name of code or routine: TOKAMAK-DL
3. Type of program:  Complete,  Subprogram,  Others (Please specify: )

4. Authors: Tatsuoki TAKEDA
- Programmed by: Tatsuoki TAKEDA

5. Computers
- [5-1] Name of computers: FACOM 230/75

[5-2] Operating systems:

- [5-3] Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

- [5-4] Size of core memory required: 128 kw (4K).

- [5-5] Number of bits in a word: 36 bits/w.

- [5-6] Overlay structure:  Yes,  No.

- [5-7] Magnetic disks:  Yes,  No.

- [5-8] Number of magnetic tapes required: 0

[5-9] Other peripherals used:

- Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: )

6. Number of cards in combined program and test deck: 2500

7. Run time for the test deck: 20 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PS60.001
2. Date of registration:
3. Form of catalogued program:  Source file,  RB file,  EB file,  Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:



Index Number  
PS60.002

Serial Number  
76-0086

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:

Space-time evolution of tokamak plasmas in joule heating phase.  
Cylindrical three-component (electron, ion, neutrals) plasma.  
Anomalous diffusion and electron thermal conductivity are included.

1. Title of program: Tokamak Simulation in Joule Heating Phase
2. Name of code or routing: TOKJOULE  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others [Please specify: ]
4. Authors: Teruhiko TAZIMA, Tomofumi KOBAYASHI  
Programmed by:
5. Computers  
(5-1) Name of computers: FACOM 230/75  
(5-2) Operating systems:  
(5-3) Programming language: []PL/I, []Fortran, []ALGOL, []Assembler, []Others [Please specify: ]  
(5-4) Size of core memory required: 80 kW (or kb).  
(5-5) Number of bits in a word: 71 bits/W.  
(5-6) Overlay structure: []Yes, []No.  
(5-7) Magnetic disks: []Yes, []No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, []XY plotter, []Others [Please specify: ]
6. Number of cards in combined program and test deck: 3400
7. Run time for the test deck: 15 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PS60.002
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []RB file, []EB file, []Others [Please specify: ]
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number

76-0087

Index Number

PS60.003

8. Brief description of the program:

Space-time evolution of tokamak plasmas in additional heating phase. Cylindrical three-component (electron, ion, neutrals) plasma. Anomalous diffusion and electron thermal conductivity are included. Neutral beam injection as additional heating is considered.

COMPUTER PROGRAM SUMMARY

1. Title of program: Tokamak Simulation in Additional Heating Phase

2. Name of code or routine: TOKNB

Subname or version:

3. Type of program:  Complete,  Subprogram,  
 Others (Please specify: )

4. Authors: Teruhiko TAZIMA, Masafumi AZUMI

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/I,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )

(5-4) Size of core memory required: 95 kb (or less).

(5-5) Number of bits in a word: 71 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XV platen,  
 Others (Please specify: )

6. Number of cards in combined program and test deck: 3800

7. Run time for the test deck: 15 min.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: PS60.003

2. Date of registration:

3. Form of catalogued program:  
 Source tape,  Source file,  IRB file,  IEB file,  
 Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

Index Number  
PS60.004

Serial Number  
76-0088

COMPUTER PROGRAM SUMMARY

1. Title of program: Radial Transport in a Tokamak Plasma
2. Name of code or routine: TOKAMAK  
Subname or version:
3. Type of program: MComplete, []Subprogram,  
[]Others (Please specify: )
4. Authors: Masayuki NAGAMI  
Programmed by:
5. Computers: IRM  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language: []PL/I, []Fortran, []ALGOL, []Assembler,  
[]Others (Please specify: )  
(5-4) Size of core memory required: 60 k~~W~~ (k~~W~~ kB)  
(5-5) Number of bits in a word: 32 bits/W.  
(5-6) Overlay structure: []Yes, []No.  
(5-7) Magnetic disks: []Yes, []No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, []XV plotter,  
[]Others (Please specify: )
6. Number of cards in combined program and test deck: 3000
7. Run time for the test deck: 30 min.

8. Brief description of the program:

A radial transport code of tokamak plasma. Main options of the code are; (1) cold and hot neutral particles, (2) impurity distribution (Oxygen, coronal equilibrium), (3) diverter simulation.

9. References:

(\*)To be completed by the authors)  
\*\*\*\*\*  
(+)To be completed by the cataloguers)

1. Index number: PS60.004
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []RS file, []EB file,  
[]Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0089

Index Number  
PS60.005

COMPUTER PROGRAM SUMMARY

8. *Brief description of the program:*  
One dimensional particle and energy balance equations are solved by Cranck-Nicolson's difference scheme. Impurities and neutrals are included.

1. *Title of program:* Tokamak Transport Code
2. *Name of code or routine:* TRANSTOK  
*Subname or version:*
3. *Type of program:* MComplete, []Subprogram, []Others (Please specify: )
4. *Authors:* Masao OKAMOTO  
*Programmed by:* Masao OKAMOTO
5. *Computers:* FACOM 230/75  
  - (5-1) *Name of computers:*
  - (5-2) *Operating systems:*
  - (5-3) *Programming language:* []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )
  - (5-4) *Size of core memory required:* 90 kW (or kB).
  - (5-5) *Number of bits in a word:* 36 bits/w.
  - (5-6) *Overlay structure:* []Yes, MNo.
  - (5-7) *Magnetic disks:* []Yes, MNo.
  - (5-8) *Number of magnetic tapes required:*
  - (5-9) *Other peripherals used:*  
 []Card punch, []Graphic display, MGraphic COM, []XY plotter, []Others (Please specify: )
6. *Number of cards in combined program and test deck:* 8000
7. *Run time for the test deck:* 1 min. for the case of no impurities.  
10 min. for the case including impurities (Oxygen)

9. *References:*  
T. Amato and M. Okamoto, JAERI-M to be published.  
  - (+To be completed by the authors)  
\*\*\*\*\*
  - (+To be completed by the cataloguers)  
\*\*\*\*\*
1. *Index number:* PS60.005
2. *Date of registration:*
3. *Form of catalogued program:*  
  - []Source tape, []Source file, []RB file, []EB file, []Others (Please specify: )
4. *Key words:*
5. *Laboratory or group:*
6. *Remarks:*

Index Number  
PS60.006

Serial Number  
76-0090

COMPUTER PROGRAM SUMMARY

8. Brief description of the program:  
1D radial transport code for tokamak simulation. Subprograms for impurity transport, neutral beam injection including two component concept,  $\alpha$  heating are provided.

1. Title of program: Radial Transport in a Tokamak Fusioning Plasma
2. Name of code or routine:  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )
4. Authors: Masayuki MAGAMI  
Programmed by:
5. Computers  
(5-1) Name of computers: IBM  
(5-2) Operating systems:  
(5-3) Programming language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )  
(5-4) Size of core memory required: 50 kW (or k8B).  
(5-5) Number of bits in a word: 32 bits/W.  
(5-6) Overlay structure: []Yes, []No.  
(5-7) Magnetic disks: []Yes, []No.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, []XY plotter, []Others (Please specify: )
6. Number of cards in combined program and test deck: 1500
7. Run time for the test deck: 50 min.

9. References:  
M. Nagami, JAERI-M 6178 (1975).  
(To be completed by the authors)  
\*\*\*\*\*  
(To be completed by the cataloguers)
1. Index number: PS60.006, RD00.005
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []RB file, []EB file, []Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Serial Number  
76-0092

Date June 12, 1976

Index Number  
PS90.001

8. Brief description of the program:

Rate equations describing ionization and recombination of impurity ions are solved as an eigenvalue problem.

COMPUTER PROGRAM SUMMARY

1. Title of program: Rate Equation
2. Name of code or routine: RATEEQ  
Subname or version:
3. Type of program: MComplete, []Subprogram, []Others (Please specify: )
4. Authors: Masao OKAMOTO  
Programmed by: Masao OKAMOTO
5. Computers: FACOM 230/75  
(5-1) Name of computers:  
(5-2) Operating systems:  
(5-3) Programming language: []PL/I, MFortran, []ALGOL, []Assembler, []Others (Please specify: )  
(5-4) Size of core memory required: 30 kw (or kb).  
(5-5) Number of bits in a word: 36 bits/w.  
(5-6) Overlay structure: []Yes, MNo.  
(5-7) Magnetic disks: []Yes, MNo.  
(5-8) Number of magnetic tapes required:  
(5-9) Other peripherals used:  
[]Card punch, []Graphic display, []Graphic COM, MXY plotter, []Others (Please specify: )
6. Number of cards in combined program and test deck: 1,000
7. Run time for the test deck:  
Below 1 sec. for carbon or oxygen impurities.

9. References:

T. Amano and M. Okamoto; JAERI-M 6401 (1976).

(\*To be completed by the authors)  
\*\*\*\*\*  
(\*To be completed by the cataloguers)

1. Index number: PS90.001
2. Date of registration:
3. Form of catalogued program:  
[]Source tape, []Source file, []RS file, []EB file, []Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

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PS10.003	NA30.001
PS20.004	MP30.001
PS60.007	PF30.003
PS60.008	PF30.004
PS60.009	PF50.001
PS70.001	PF80.001
PS70.002	PF80.002
PS70.003	PF70.002
PS70.004	PS20.001
PS80.002	NA30.001

(2) UNPUBLISHED CODES

<u>INDEX NUMBER</u>	<u>TITLE</u>
PS80.001	TWO DIMENSIONAL POISSON SOLVER

RD : REACTOR DESIGN

CONTENTS

\* RD00.001 - RD00.004

-----

\* RD00.005



Serial Number  
76-0093

Index Number  
RD00.001

8. Brief description of the program:

Using neutron cross sections filed in ENDF/B-III or ENDF/B-IV damage functions, DPA's and production rates of He and H atoms are calculated.

COMPUTER PROGRAM SUMMARY

1. Title of program: Neutron Irradiation Damage in Fusion Reactor First Wall Materials
2. Name of code or routine: TENJIN  
Subname or version: 1, 2
3. Type of program: MComplete, [ ]Subprogram, [ ]Others (Please specify: )
4. Authors: Kazuho SONE  
Programmed by: Kazuho SONE
5. Computers: FACOM 230/60, 230/75  
 (5-1) Name of computers:  
 (5-2) Operating systems:  
 (5-3) Programming language: [ ]PL/I, MFortran, [ ]ALGOL, [ ]Assembler, [ ]Others (Please specify: )  
 (5-4) Size of core memory required: 120 kW (or kB)  
 (5-5) Number of bits in a word: 36 bits/w.  
 (5-6) Overlay structure: [ ]Yes, MNo.  
 (5-7) Magnetic disks: [ ]Yes, MNo.  
 (5-8) Number of magnetic tapes required:  
 (5-9) Other peripherals used: MCard punch, [ ]Graphic display, [ ]Graphic COM, [ ]XY plotter, [ ]Others (Please specify: )
6. Number of cards in combined program and test deck: 3000
7. Run time for the test deck:

9. References:

K. Sone et al., JAERI-M 6358.

(+To be completed by the authors)  
 \*\*\*\*\*  
 (+To be completed by the cataloguers)

1. Index number: RD00.001, EN30.001, SP00.002
2. Date of registration:
3. Form of catalogued program: [ ]Source tape, [ ]Source file, [ ]RB file, [ ]EB file, [ ]Others (Please specify: )
4. Key words:
5. Laboratory or group:
6. Remarks:

Index Number  
RD00.002

Serial Number  
76-0094

## COMPUTER PROGRAM SUMMARY

1. **Title of program:** Spatial Distributions of Neutron Spectra and Reaction-Rates
2. **Name of code or routine:** APPLE  
**Subname or version:**
3. **Type of program:**  Complete,  Subprogram,  Others (Please specify: )
4. **Authors:** Yasuji SEKI, Hideo NARITA, Masahito IGARASHI  
**Programmed by:**
5. **Computers**  
(5-1) **Name of computers:** FACOM 230/75  
(5-2) **Operating systems:**  
(5-3) **Programming language:**  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: )  
(5-4) **Size of core memory required:** 128 kb (or #B).  
(5-5) **Number of bits in a word:** bits/w.  
(5-6) **Overlay structure:**  Yes,  No.  
(5-7) **Magnetic disks:**  Yes,  No.  
(5-8) **Number of magnetic tapes required:** 2  
(5-9) **Other peripherals used:**  
 Card punch,  Graphic display,  Graphic COM,  MXV plotter,  Others (Please specify: ).
6. **Number of cards in combined program and test deck:** 3220
7. **Run time for the test deck:** 1 min.

### 8. Brief description of the program:

A computer code APPLE which plots the spatial distribution of energy spectra of multi-group neutron fluxes has been developed. It can also calculate various reaction-rates and plot their spatial distribution. The reaction-rates of varied systems may be plotted in a graph, to facilitate comparison between the systems. The code is written in FORTRAN IV, and the CALCOMP plotter is used.

### 9. References:

Y. Seki, H. Narita, M. Igarashi, JAERI-M 6365 (in Japanese) 1975

(\*) To be completed by the authors)  
\*\*\*\*\*  
(\*) To be completed by the cataloguers)

1. **Index number:** RD00.002
2. **Date of registration:**
3. **Form of catalogued program:**  
 Source tape,  Source file,  RE file,  EB file,  Others (Please specify: ).
4. **Key words:** plotter code, spatial distribution, neutron energy spectra, reaction-rate, multi-plot
5. **Laboratory or group:** Fusion Reactor
6. **Remarks:**

(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

<u>SUBSIDIARY INDEX NUMBER</u>	<u>PRINCIPAL INDEX NUMBER</u>
RD00.005	PS60.006

(2) UNPUBLISHED CODES

<u>INDEX NUMBER</u>	<u>TITLE</u>
RD00.003	
RD00.004	

SP : SOLID STATE PHYSICS

CONTENTS

\* SP00.001

Index Number  
SPO0.001

Date June 22, 1976

Serial Number  
76-0097

### COMPUTER PROGRAM SUMMARY

#### 8. Brief description of the program:

On the basis of Lindhard's statistical theory, principal parameters pertinent to the plasma wall interaction are calculated as a function of bombarding ion energy. They are specific energy loss, project range and its straggling of energetic ions, damage efficiency and average DPA in the displacement damage of lattice atoms etc.

1. Title of program: Passage of High Energy Ions in Solid

2. Name of code or routine: RANGE

Subname or version:

3. Type of program: M Complete, [ ] Subprogram,  
[ ] Others (Please specify: )

4. Authors: Kazuho SONE

Programmed by: Kazuho SONE

5. Computers

(5-1) Name of computers: FACOM 230/60, 230/75

(5-2) Operating systems:

(5-3) Programming language: [ ] PL/I, [ ] Fortran, [ ] ALGOL, [ ] Assembler,  
[ ] Others (Please specify: )

(5-4) Size of core memory required: 60 kW (or kb).

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure: [ ] Yes, MNo.

(5-7) Magnetic disks: [ ] Yes, MNo.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

[ ] Card punch, [ ] Graphic display, [ ] Graphic COM, [ ] XY plotter,  
[ ] Others (Please specify: )

6. Number of cards in combined program and test deck: 500

7. Run time for the test deck: 10 min.

#### 9. References:

JAERI-M 6293.

(\*) To be completed by the authors:  
\*\*\*\*\*  
(+) To be completed by the cataloguers )

1. Index number: SPO0.001, ER30.002

2. Date of registration:

3. Form of catalogued program:  
[ ] Source tape, [ ] Source file, [ ] RS file, [ ] EB file,  
[ ] Others (Please specify: )

4. Key words:

5. Laboratory or group:

6. Remarks:

(1) CODES WHOSE ABSTRACTS ARE FOUND IN OTHER CATEGORIES

SUBSIDIARY INDEX NUMBER                      PRINCIPAL INDEX NUMBER

SP00.002

RD00.001

SY : SYSTEM PROGRAM

CONTENTS

\* SY00.001

Serial Number  
76-0098

Date June 12, 1976

Index Number  
SY00.001

8. Brief description of the program:

COMPUTER PROGRAM SUMMARY

A pre-processor for replacing a simplified COMMON statements ("// (label of COMMON)") by standard COMMON statements.

1. Title of program: Production of COMMON Statements

2. Name of code or routine: PRECI

Subname or version:

3. Type of program:  Complete,  Subprogram,  Others (Please specify: Pre-Processor ).

4. Authors: Masao OKAMOTO

Programmed by:

5. Computers

(5-1) Name of computers: FACOM 230/75

(5-2) Operating systems:

(5-3) Programming language:  PL/1,  Fortran,  ALGOL,  Assembler,  Others (Please specify: ).

(5-4) Size of core memory required: 80 kbytes (KB).

(5-5) Number of bits in a word: 36 bits/w.

(5-6) Overlay structure:  Yes,  No.

(5-7) Magnetic disks:  Yes,  No.

(5-8) Number of magnetic tapes required:

(5-9) Other peripherals used:

Card punch,  Graphic display,  Graphic COM,  XV plotter,  Others (Please specify: ).

6. Number of cards in combined program and test deck: 50

7. Run time for the test deck: 2 sec.

9. References:

(+To be completed by the authors)  
\*\*\*\*\*  
(+To be completed by the cataloguers)

1. Index number: SY00.001

2. Date of registration:

3. Form of catalogued program:  Source tape,  Source file,  PS file,  EB file,  Others (Please specify: ).

4. Key words:

5. Laboratory or group:

6. Remarks:



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