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DATA ON COLLISIONS OF HYDROGEN ATOMS AND IONS WITH ATOMS AND MOLECULES (II)

(CROSS SECTIONS FOR CHARGE TRANSFER OF H, H^+ AND H^- WITH He, Ne, Ar, Kr and Xe)

September 1983

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Data on Collisions of Hydrogen Atoms and Ions with Atoms and Molecules (II)

(Cross Sections for Charge Transfer of H, H^+ and H^- with He, Ne, Ar, Kr and Xe)

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(Received August 9, 1983)

This report presents a compilation of the experimental data on cross sections for charge transfer of H, H^+ and H^- with inert gases such as He, Ne, Ar, Kr and Xe.

A survey has been made systematically of the literatures up to the end of 1982. The cross sections are given as a function of projectile energy in graphs and tables; a list of references is also attached.

Keywords: Charge Transfer, Hydrogen Ion, Hydrogen Atom, Inert Gas, Atomic Data, Atomic Collision

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水素原子・イオンと原子分子の衝突に関するデータ集（Ⅱ）
（H，H^+ および H^- と He，Ne，Ar，Kr および Xe の電荷移動断面積）

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（1983年8月9日受理）

この報告書は，H，H^+ および H^- と He，Ne，Ar，Kr および Xe などの希ガスの電荷移動断面積の実験データを収集したものである。すなわち，上述の過程の1982年までに発表された文献を調べ，その結果をまとめたものである。また断面積の値を入射粒子のエネルギーの関数としてグラフおよび数値表の形にまとめ，これに文献リストを加えている。

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1. Introduction

Atomic and molecular processes have a major role in many fields such as radiation physics, astrophysics, medical science and so on. Especially the processes are crucial to energy and particle balances in a magnetic fusion plasma[1]. The requirements of keeping the atomic and molecular data in readiness for reference are now rapidly increasing as the tokamak program makes progress. The charge transfer process is the most determining one among the atomic and molecular processes in fusion plasma, being closely related with plasma modelling and diagnostics.

In a previous report[2] a compilation has been performed on the charge transfer cross sections for H, H^+, and H^- incident on H_2, N_2, O_2, H_2O, C, and carbon containing molecules. In this report a compilation is extended to inert gases such as He, Ne, Ar, Kr, and Xe.

These collision processes and cross section data are of importance especially in relation to the plasma modelling and diagnostics for several reasons. Fast atomic beam probes of inert gases can provide useful information on plasma ion densities and temperature. The exhaust of the helium gas produced in the D-T fusion processes is also the problem to be resolved. In this respect inert gases can be employed for wall protection by increasing plasma edge cooling. Thus the knowledge of charge transfer cross sections for the inert gases is indispensable to the elucidation of atomic and molecular problems.

This report presents a compilation in graphs and tables of the experimental cross sections for charge transfer of H, H^+, and H^- with He, Ne, Ar, Kr, and Xe. The literatures up to the end of 1982 are surveyed for the present compilation.

The numerical data are stored in the Atomic and Molecular Data Strage and Retrieval System (AMSTOR) of JAERI, being available to interested users on magnetic tape for their requests.

The authors are thankful to Miss N. Komatsu for careful typing the manuscripts.

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2. Data on Charge Transfer Cross Sections

2.1 Table of Compiled Processes

Table I Compiled Processes

Type of Cross Sections	Processes	
σ_{10}	(1) $H^+ + He \rightarrow H$	(4) $H^+ + Kr \rightarrow H$
	(2) $H^+ + Ne \rightarrow H$	(5) $H^+ + Xe \rightarrow H$
	(3) $H^+ + Ar \rightarrow H$	
σ_{0-1}	(6) $H + He \rightarrow H^-$	(9) $H + Kr \rightarrow H^-$
	(7) $H + Ne \rightarrow H^-$	(10) $H + Xe \rightarrow H^-$
	(8) $H + Ar \rightarrow H^-$	
σ_{1-1}	(11) $H^+ + He \rightarrow H^-$	(14) $H^+ + Kr \rightarrow H^-$
	(12) $H^+ + Ne \rightarrow H^-$	(15) $H^+ + Xe \rightarrow H^-$
	(13) $H^+ + Ar \rightarrow H^-$	
σ_{01}	(16) $H + He \rightarrow H^+$	(19) $H + Kr \rightarrow H^+$
	(17) $H + Ne \rightarrow H^+$	(20) $H + Xe \rightarrow H^+$
	(18) $H + Ar \rightarrow H^+$	
σ_{-10}	(21) $H^- + He \rightarrow H$	(24) $H^- + Kr \rightarrow H$
	(22) $H^- + Ne \rightarrow H$	(25) $H^- + Xe \rightarrow H$
	(23) $H^- + Ar \rightarrow H$	
σ_{-11}	(26) $H^- + He \rightarrow H^+$	(29) $H^- + Kr \rightarrow H^+$
	(27) $H^- + Ne \rightarrow H^+$	(30) $H^- + Xe \rightarrow H^+$
	(28) $H^- + Ar \rightarrow H^+$	

Note: Numbers indicated in processes correspond to the numbers of figures and tables of cross section data.

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Measurement of charge-transfer cross sections for 0.25- to 2.5-MeV protons and hydrogen atoms incident upon hydrogen and helium gases

2.3 Lists of Measurements of σ_{10}, σ_{0-1}, σ_{1-1}, σ_{01}, σ_{-10} and σ_{-11}

Note on Table

Method*

A	:	Attenuation method
C	:	Condenser method
Coi	:	Coincidence method
E	:	Equilibrium method
G	:	Growth method
MS	:	Mass spectrometric method

F/T

F	:	Data from figures read by using program READXY**,***
T	:	Data from tables

* For the detailed discussions on the experimental method, see the Appendix of ref. (2) of Introduction.

** READXY was prepared by T. Nakagawa, Nuclear Data Center.

*** Numerical values are read from figures of references by us under our responsibility.

Table II A List of Measurements of σ_{10}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Stedeford & Hasted	1955	1.00+2 ∿ 4.00+4	He,Ne,Ar,Kr,Xe	C	F	28
Stier & Barnett	1956	4.00+3 ∿ 2.00+5	He,Ne,Ar	G+E	F	29
Barnett & Reynolds	1958	1.00+4 ∿ 1.00+6	He,Ar	G+E	F	3
de Heer et al.	1966	1.00+4 ∿ 1.40+5	He,Ne,Ar,Kr	C	T	6
Williams & Dunbar	1966	2.00+3 ∿ 5.30+4	He,Ne,Ar,Kr,Xe	G	F	35
Williams	1967	3.50+5 ∿ 2.50+6	He	G	F	39
Welsh et al.	1967	4.40+5 ∿ 5.41+6	He,Ar	A	T	34
Schryber	1967	1.04+6 ∿ 4.37+6	He,Ne,Ar,Kr	G	T	24
Toburen & Nakai	1968	1.00+5 ∿ 2.50+6	He,Ar,Kr	G	T	30
Afrosimov et al.	1969	5.00+3 ∿ 5.00+4	He,Ne,Kr,Xe	Coi	F	1
Morgan et al.	1976	1.25+4 ∿ 1.80+4	Xe	A+G	T	18
Latypov & Shaporenko	1976	8.00+1 ∿ 1.50+3	He,Ne,Ar,Kr	C	F	15
Bratton et al.	1977	2.93+5	He	G	*	4

* in the Ref.

Table III A List of Measurements of σ_{0-1}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Fogel' et al.	1958	5.00+3 ∿ 4.00+4	He,Ne,Ar,Kr,Xe	MS	F	11
Donahue & Hushfar	1961	9.36+3 ∿ 3.92+4	Ar	C	F	8
Williams	1967	2.00+3 ∿ 5.00+4	He,Ne,Ar,Kr,Xe	G	F	37
Schryber	1967	2.50+5 ∿ 1.00+6	He,Ar	G	F	24
Morgan et al.	1976	5.40+3 ∿ 2.50+4	Xe	A+G	T	18
Van Zyl et al.	1977	5.00+1 ∿ 3.00+3	Ar	C	T	32
Roussel et al.	1977	5.00+2 ∿ 3.00+3	He,Ne,Ar,Kr,Xe	G	F	23
Anderson et al.	1980	5.00+4 ∿ 2.00+5	He,Ne,Ar,Kr,Xe	G	T	2

Table IV A List of Measurements of σ_{1-1}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Fogel' & Mitin	1956	9.50+3 ∿ 2.90+4	He,Ne,Ar	G	F	9
Fogel' et al.	1959	1.97+3 ∿ 6.63+4	He,Ne,Ar,Kr,Xe	G	F	12
Williams	1966	2.00+3 ∿ 5.00+4	He,Ne,Ar,Kr,Xe	G	F	36
Kozlov & Bondar'	1966	4.94+2 ∿ 6.13+3	He,Ne	G+C	F	14
Schryber	1967	2.53+5 ∿ 1.03+6	He,Ar	G	T	24
Toburen & Nakai	1969	7.50+4 ∿ 2.00+5	He,Ar,Kr	G	T	31
Morgan et al.	1976	1.25+4 ∿ 2.50+4	Xe	A+G	T	18

Table V A List of Measurements of σ_{01}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Fogel' et al.	1958	5.00 +3 ∿ 4.00+4	He,Ne,Ar,Kr,Xe	G	F	11
Barnett & Reynolds	1958	1.00 +4 ∿ 1.00+6	He,Ar	G+E	F	3
Donahue & Hushfar	1961	9.00 +3 ∿ 3.90+4	Ar	C+A	F	8
Williams	1967	2.00 +3 ∿ 5.00+4	He,Ne,Ar,Kr,Xe	G	F	37
Williams	1967	2.50 +5 ∿ 2.50+6	He	G	F	39
Welsh et al.	1967	1.027+6 , 2.44+6	He,Ar	A	T	34
Dimov & Dudnikov	1967	9.00 +5 ∿ 1.30+6	He	G	T	7
Toburen & Nakai	1968	1.00 +5 ∿ 2.50+6	He,Ar,Kr	G	T	30
McNeal et al.	1970	1.00 +3 ∿ 2.50+4	He,Ne,Kr	C	F	17
Morgan et al.	1976	5.40 +3 ∿ 2.50+4	Xe	A+G	T	18
Smith et al.	1976	2.50 +2 ∿ 5.00+3	He	G	T	26
Roussel et al.	1977	5.00 +2 ∿ 3.00+3	He,Ne,Ar,Kr,Xe	G	F	23
Pedersen et al.	1977	5.00 +4 ∿ 4.00+6	Xe	G	F	19
Pedersen & Larsen	1979	5.00 +4 ∿ 4.00+6	He,Xe	Coi	T	20
Anderson et al.	1980	5.00 +4 ∿ 2.00+5	He,Ne,Ar,Kr,Xe	G	T	2
Van Zyl et al.	1981	5.00 +1 ∿ 3.00+3	He	C	F	33

Table VI A List of Measurements of σ_{-10}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Stedeford & Hasted	1955	3.20+3 ∿ 3.90+4	He,Ne,Ar,Kr,Xe	C	F	28
Stier & Barnett	1956	4.00+3 ∿ 2.80+4	He	G+E	F	29
Rose et al.	1958	4.00+5 ∿ 1.75+6	Ar	G	T	22
Smythe & Toevs	1965	1.46+7	He,Ar	G+E	T	27
Bydin	1966	8.29+2 , 7.46+3 1.93+2 ∿ 6.44+3	Ar,Kr Xe	C	F	5
Williams	1967	2.00+3 ∿ 5.00+4	He,Ne,Ar,Kr,Xe	G	F	38
Dimov & Dudnikov	1967	9.00+5 ∿ 1.30+6	He	G	T	7
Simpson & Gilbody	1972	3.00+3 ∿ 3.00+4	He,Ar	A	F	25
Risley & Geballe	1974	2.00+2 ∿ 1.00+4	He,Ar	A	F	21
Morgan et al.	1976	1.25+4 ∿ 2.50+4	Xe	A+G	T	18
Heinemeier et al.	1976	5.00+4 ∿ 5.00+5	He,Ar	G	T	13
Anderson et al.	1980	5.00+4 ∿ 2.00+5	He,Ne,Ar,Kr,Xe	G	T	2

Table VII A List of Measurements of σ_{-11}

Authors	Year	Energy Range(eV)	Target	Method	F/T	Ref.
Fogel' et al.	1957	5.00+3 ∿ 4.00+4	He,Ne,Ar,Kr,Xe	G	F	10
Smythe & Toevs	1965	1.46+7	He,Ar	G+E	T	27
Williams	1967	2.00+3 ∿ 5.00+4	He,Ne,Ar	G	F	38
Dimov & Dudnikov	1967	9.00+5 ∿ 1.30+6	He	G	T	7
Morgan et al.	1976	1.25+4 ∿ 2.50+4	Xe	A+G	T	18
Heinemeier et al.	1976	5.00+4 ∿ 5.00+5	He,Ar	G	T	13
Lichtenberg et al.	1980	3.00+4 ∿ 2.20+5	He,Ar	G	T	16
Anderson et al.	1980	5.00+4 ∿ 2.00+5	He,Ne,Ar,Kr,Xe	G	T	2

2.4 Graphs and Tables of Cross Sections

Note on Tables

E(EV)	Projectile Energy in eV
V(10(8)*CM/SEC)	Projectile Velocity in 10^8 cm/sec
SIGMA(CM(2))	Cross Section in cm^2

Fig. 1 $H^+ + He \rightarrow H \quad (\sigma_{10})$

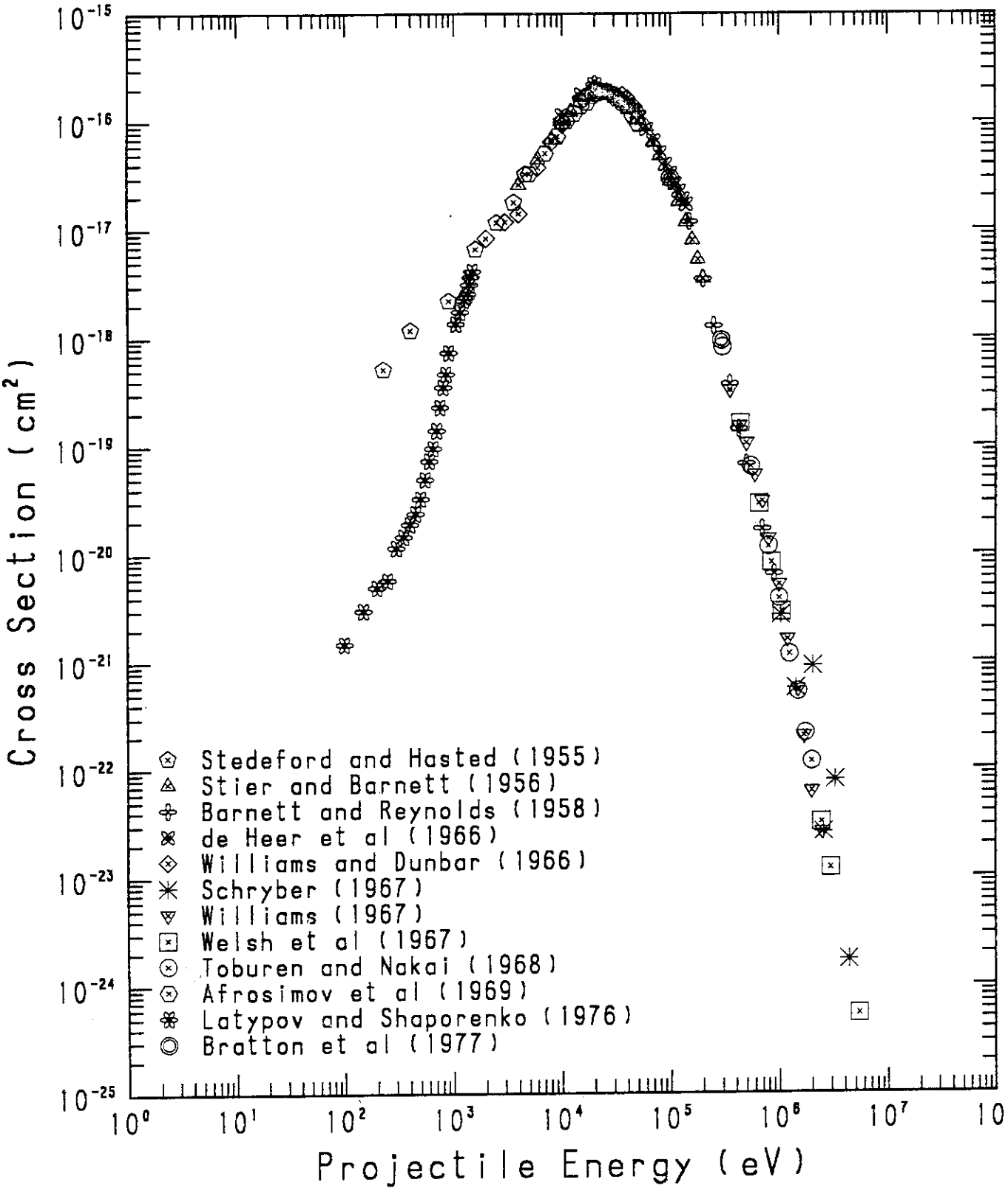

TABLE 1

PROCESS : H+ + HE = H (10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.25E+02	2.08E-01	5.12E-19
4.00E+02	2.78E-01	1.18E-18
9.00E+02	4.17E-01	2.20E-18
1.60E+03	5.56E-01	6.61E-18
2.50E+03	6.95E-01	1.16E-17
3.60E+03	8.33E-01	1.78E-17
4.60E+03	9.42E-01	3.25E-17
1.00E+04	1.39E+00	1.00E-16
1.50E+04	1.70E+00	1.59E-16
2.00E+04	1.96E+00	1.79E-16
2.50E+04	2.20E+00	1.85E-16
3.00E+04	2.41E+00	1.74E-16
3.50E+04	2.60E+00	1.57E-16
4.00E+04	2.78E+00	1.41E-16

STIER AND BARNETT, PHYS. REV. 103 896 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+03	8.79E-01	2.59E-17
6.00E+03	1.08E+00	4.48E-17
8.00E+03	1.24E+00	6.85E-17
1.00E+04	1.39E+00	9.48E-17
1.20E+04	1.52E+00	1.23E-16
1.60E+04	1.76E+00	1.68E-16
2.00E+04	1.96E+00	1.80E-16
2.50E+04	2.20E+00	1.86E-16
3.00E+04	2.41E+00	1.77E-16
4.00E+04	2.78E+00	1.42E-16
5.00E+04	3.11E+00	1.16E-16
6.00E+04	3.40E+00	8.91E-17
7.00E+04	3.68E+00	6.46E-17
8.00E+04	3.93E+00	4.79E-17
1.00E+05	4.39E+00	2.81E-17
1.20E+05	4.81E+00	1.81E-17
1.40E+05	5.20E+00	1.17E-17
1.60E+05	5.56E+00	7.95E-18
1.80E+05	5.89E+00	5.28E-18
2.00E+05	6.21E+00	3.50E-18

TABLE 1 -CONTINUED

BARNETT AND REYNOLDS, PHYS. REV. 109 355 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	9.82E-17
2.00E+04	1.96E+00	2.20E-16
5.00E+04	3.11E+00	1.20E-16
1.00E+05	4.39E+00	2.83E-17
1.50E+05	5.38E+00	1.18E-17
2.00E+05	6.21E+00	3.48E-18
2.50E+05	6.95E+00	1.28E-18
3.50E+05	8.22E+00	3.72E-19
4.25E+05	9.06E+00	1.42E-19
5.00E+05	9.82E+00	6.77E-20
7.00E+05	1.16E+01	1.68E-20
9.00E+05	1.32E+01	6.51E-21

DE HEER ET AL, PHYSICA 32 1766 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	1.15E-16
1.50E+04	1.70E+00	1.77E-16
2.00E+04	1.96E+00	2.21E-16
2.50E+04	2.20E+00	1.92E-16
3.00E+04	2.41E+00	1.75E-16
3.50E+04	2.60E+00	1.65E-16
4.00E+04	2.78E+00	1.35E-16
5.00E+04	3.11E+00	1.08E-16
6.00E+04	3.40E+00	8.50E-17
7.00E+04	3.68E+00	6.60E-17
8.00E+04	3.93E+00	5.10E-17
9.00E+04	4.17E+00	4.00E-17
1.00E+05	4.39E+00	3.30E-17
1.10E+05	4.61E+00	2.64E-17
1.20E+05	4.81E+00	2.25E-17
1.30E+05	5.01E+00	1.90E-17
1.40E+05	5.20E+00	1.70E-17

WILLIAMS AND DUNBAR, PHYS. REV. 149 62 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	8.31E-18
3.00E+03	7.61E-01	1.18E-17
4.00E+03	8.79E-01	1.40E-17
6.00E+03	1.08E+00	3.74E-17
8.00E+03	1.24E+00	6.44E-17
1.00E+04	1.39E+00	9.37E-17

TABLE 1 -CONTINUED

1.60E+04	1.76E+00	1.61E-16
1.80E+04	1.86E+00	1.83E-16
2.00E+04	1.96E+00	1.92E-16
2.20E+04	2.06E+00	1.90E-16
2.60E+04	2.24E+00	1.89E-16
3.00E+04	2.41E+00	1.76E-16
3.60E+04	2.64E+00	1.74E-16
4.00E+04	2.78E+00	1.62E-16
4.60E+04	2.98E+00	1.38E-16
5.00E+04	3.11E+00	1.22E-16

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.04E+06	1.42E+01	2.70E-21
1.43E+06	1.66E+01	5.70E-22
2.05E+06	1.99E+01	9.10E-22
2.56E+06	2.22E+01	2.60E-23
3.28E+06	2.52E+01	7.90E-23
4.37E+06	2.90E+01	1.70E-24

WILLIAMS, PHYS. REV. 157 97 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.50E+05	8.22E+00	3.25E-19
4.30E+05	9.11E+00	1.51E-19
5.00E+05	9.82E+00	1.05E-19
6.00E+05	1.08E+01	5.38E-20
7.00E+05	1.16E+01	3.05E-20
8.00E+05	1.24E+01	1.37E-20
1.00E+06	1.39E+01	5.18E-21
1.20E+06	1.52E+01	1.61E-21
1.50E+06	1.70E+01	5.50E-22
1.70E+06	1.81E+01	2.01E-22
2.00E+06	1.96E+01	6.22E-23
2.50E+06	2.20E+01	2.61E-23

WELSH ET AL, PHYS. REV. 158 85 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.40E+05	9.21E+00	1.60E-19
6.54E+05	1.12E+01	2.90E-20
8.51E+05	1.28E+01	8.30E-21
1.06E+06	1.43E+01	2.90E-21

TABLE 1 -CONTINUED

2.45E+06	2.17E+01	3.20E-23
2.99E+06	2.40E+01	1.20E-23
5.41E+06	3.23E+01	5.40E-25

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	2.98E-17
3.00E+05	7.61E+00	8.17E-19
5.50E+05	1.03E+01	6.41E-20
8.00E+05	1.24E+01	1.17E-20
1.00E+06	1.39E+01	3.87E-21
1.25E+06	1.55E+01	1.17E-21
1.50E+06	1.70E+01	5.26E-22
1.75E+06	1.84E+01	2.15E-22
2.00E+06	1.96E+01	1.17E-22

AFROSIMOV ET AL, SOV. PHYS. TP 14 109 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.26E-17
7.00E+03	1.16E+00	5.06E-17
9.00E+03	1.32E+00	7.28E-17
1.10E+04	1.46E+00	1.01E-16
1.30E+04	1.58E+00	1.19E-16
1.50E+04	1.70E+00	1.40E-16
1.70E+04	1.81E+00	1.50E-16
1.90E+04	1.91E+00	1.73E-16
2.10E+04	2.01E+00	1.82E-16
2.30E+04	2.11E+00	1.90E-16
2.60E+04	2.24E+00	1.85E-16
2.90E+04	2.37E+00	1.78E-16
3.20E+04	2.48E+00	1.63E-16
3.60E+04	2.64E+00	1.48E-16
4.00E+04	2.78E+00	1.39E-16
4.50E+04	2.95E+00	1.13E-16
5.00E+04	3.11E+00	9.59E-17

LATYPOV AND SHAPORENKO, SOV. PHYS. TP 21 1277 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+02	1.39E-01	1.48E-21
1.50E+02	1.70E-01	3.01E-21
2.00E+02	1.96E-01	4.95E-21

TABLE 1 -CONTINUED

2.50E+02	2.20E-01	5.75E-21
3.00E+02	2.41E-01	1.15E-20
3.50E+02	2.60E-01	1.45E-20
4.00E+02	2.78E-01	1.89E-20
4.50E+02	2.95E-01	2.38E-20
5.00E+02	3.11E-01	3.26E-20
5.50E+02	3.26E-01	4.93E-20
6.00E+02	3.40E-01	7.31E-20
6.50E+02	3.54E-01	9.53E-20
7.00E+02	3.68E-01	1.39E-19
7.50E+02	3.80E-01	2.28E-19
8.00E+02	3.93E-01	3.50E-19
8.50E+02	4.05E-01	4.63E-19
9.00E+02	4.17E-01	7.34E-19
1.05E+03	4.50E-01	1.35E-18
1.15E+03	4.71E-01	1.74E-18
1.25E+03	4.91E-01	2.23E-18
1.30E+03	5.01E-01	2.38E-18
1.35E+03	5.10E-01	2.55E-18
1.40E+03	5.20E-01	3.11E-18
1.45E+03	5.29E-01	3.66E-18
1.50E+03	5.38E-01	4.12E-18

BRATTON ET AL, J. PHYS. B10 L517 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.93E+05	7.52E+00	9.40E-19

Fig. 2 $H^+ + Ne \rightarrow H \quad (\sigma_{10})$

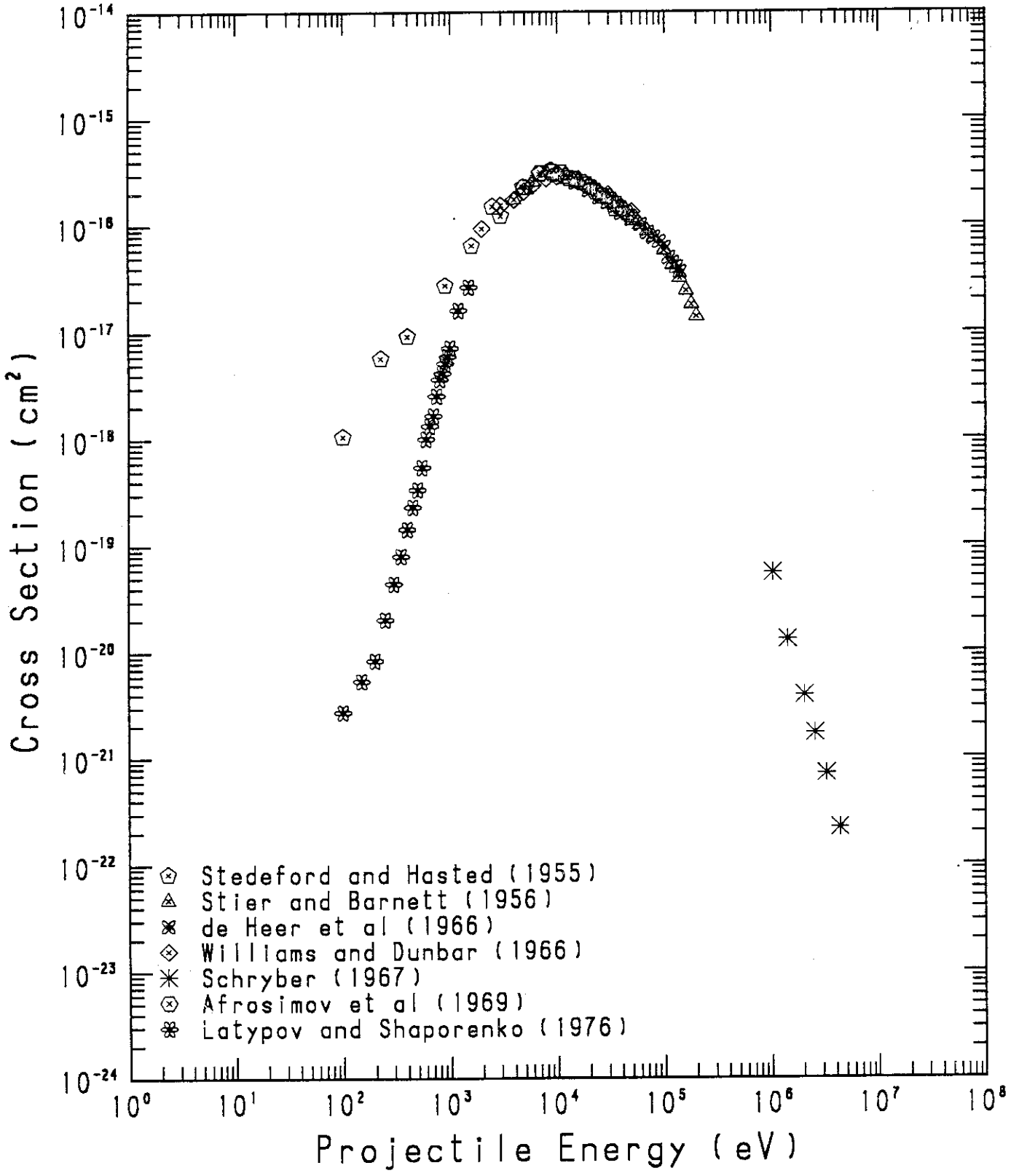

TABLE 2

PROCESS : H+ + NE = H (10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+02	1.39E-01	1.05E-18
2.25E+02	2.08E-01	5.69E-18
4.00E+02	2.78E-01	9.10E-18
9.00E+02	4.17E-01	2.73E-17
1.60E+03	5.56E-01	6.43E-17
2.50E+03	6.95E-01	1.49E-16
3.00E+03	7.61E-01	1.22E-16
4.80E+03	9.62E-01	2.26E-16
6.90E+03	1.15E+00	2.98E-16
8.70E+03	1.30E+00	3.23E-16
1.00E+04	1.39E+00	2.98E-16
1.20E+04	1.52E+00	2.83E-16
1.50E+04	1.70E+00	2.61E-16
2.00E+04	1.96E+00	2.28E-16
2.50E+04	2.20E+00	1.95E-16
3.00E+04	2.41E+00	1.65E-16
3.50E+04	2.60E+00	1.40E-16

STIER AND BARNETT, PHYS. REV. 103 896 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+03	8.79E-01	1.73E-16
6.00E+03	1.08E+00	2.55E-16
8.00E+03	1.24E+00	3.08E-16
1.00E+04	1.39E+00	3.00E-16
1.20E+04	1.52E+00	2.93E-16
1.60E+04	1.76E+00	2.65E-16
2.00E+04	1.96E+00	2.34E-16
2.50E+04	2.20E+00	2.02E-16
3.00E+04	2.41E+00	1.76E-16
4.00E+04	2.78E+00	1.39E-16
5.00E+04	3.11E+00	1.15E-16
6.00E+04	3.40E+00	9.95E-17
7.00E+04	3.68E+00	8.68E-17
8.00E+04	3.93E+00	7.57E-17
1.00E+05	4.39E+00	5.70E-17
1.20E+05	4.81E+00	4.20E-17
1.40E+05	5.20E+00	3.16E-17
1.60E+05	5.56E+00	2.41E-17
1.80E+05	5.89E+00	1.79E-17
2.00E+05	6.21E+00	1.38E-17

TABLE 2 -CONTINUED

DE HEER ET AL, PHYSICA 32 1766 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	2.87E-16
1.50E+04	1.70E+00	2.47E-16
2.00E+04	1.96E+00	2.10E-16
2.50E+04	2.20E+00	1.80E-16
3.00E+04	2.41E+00	1.61E-16
3.50E+04	2.60E+00	1.49E-16
4.00E+04	2.78E+00	1.28E-16
5.00E+04	3.11E+00	1.12E-16
6.00E+04	3.40E+00	1.00E-16
7.00E+04	3.68E+00	8.40E-17
8.00E+04	3.93E+00	7.60E-17
9.00E+04	4.17E+00	6.90E-17
1.00E+05	4.39E+00	6.10E-17
1.10E+05	4.61E+00	4.90E-17
1.20E+05	4.81E+00	4.40E-17
1.30E+05	5.01E+00	4.00E-17
1.40E+05	5.20E+00	3.60E-17

WILLIAMS AND DUNBAR, PHYS. REV. 149 62 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	9.25E-17
3.00E+03	7.61E-01	1.53E-16
4.00E+03	8.79E-01	1.73E-16
5.00E+03	9.82E-01	2.07E-16
6.00E+03	1.08E+00	2.35E-16
8.00E+03	1.24E+00	2.71E-16
1.00E+04	1.39E+00	2.82E-16
1.50E+04	1.70E+00	2.64E-16
2.00E+04	1.96E+00	2.29E-16
3.00E+04	2.41E+00	1.91E-16
4.00E+04	2.78E+00	1.46E-16
5.00E+04	3.11E+00	1.32E-16

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.04E+06	1.42E+01	5.50E-20
1.43E+06	1.66E+01	1.30E-20
2.05E+06	1.99E+01	3.90E-21
2.56E+06	2.22E+01	1.70E-21
3.28E+06	2.52E+01	7.10E-22
4.37E+06	2.90E+01	2.20E-22

TABLE 2 -CONTINUED

AFROSIMOV ET AL, SOV. PHYS. TP 14 109 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	2.25E-16
7.00E+03	1.16E+00	3.07E-16
9.00E+03	1.32E+00	3.12E-16
1.10E+04	1.46E+00	3.10E-16
1.30E+04	1.58E+00	2.72E-16
1.50E+04	1.70E+00	2.66E-16
1.70E+04	1.81E+00	2.49E-16
1.90E+04	1.91E+00	2.38E-16
2.10E+04	2.01E+00	2.23E-16
2.30E+04	2.11E+00	2.04E-16
2.60E+04	2.24E+00	1.86E-16
2.90E+04	2.37E+00	1.82E-16
3.20E+04	2.48E+00	1.69E-16
3.60E+04	2.64E+00	1.55E-16
4.00E+04	2.78E+00	1.40E-16
4.50E+04	2.95E+00	1.28E-16
5.00E+04	3.11E+00	1.17E-16

LATYPOV AND SHAPORENKO, SOV. PHYS. TP 21 1277 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+02	1.39E-01	2.72E-21
1.50E+02	1.70E-01	5.35E-21
2.00E+02	1.96E-01	8.36E-21
2.50E+02	2.20E-01	2.03E-20
3.00E+02	2.41E-01	4.40E-20
3.50E+02	2.60E-01	7.97E-20
4.00E+02	2.78E-01	1.42E-19
4.50E+02	2.95E-01	2.29E-19
5.00E+02	3.11E-01	3.34E-19
5.50E+02	3.26E-01	5.39E-19
6.00E+02	3.40E-01	9.91E-19
6.50E+02	3.54E-01	1.31E-18
7.00E+02	3.68E-01	1.63E-18
7.50E+02	3.80E-01	2.50E-18
8.00E+02	3.93E-01	3.59E-18
8.50E+02	4.05E-01	4.10E-18
9.00E+02	4.17E-01	5.08E-18
9.50E+02	4.28E-01	5.90E-18
1.00E+03	4.39E-01	7.08E-18
1.20E+03	4.81E-01	1.59E-17
1.50E+03	5.38E-01	2.62E-17

Fig. 3 $H^+ + Ar \rightarrow H \quad (\sigma_{10})$

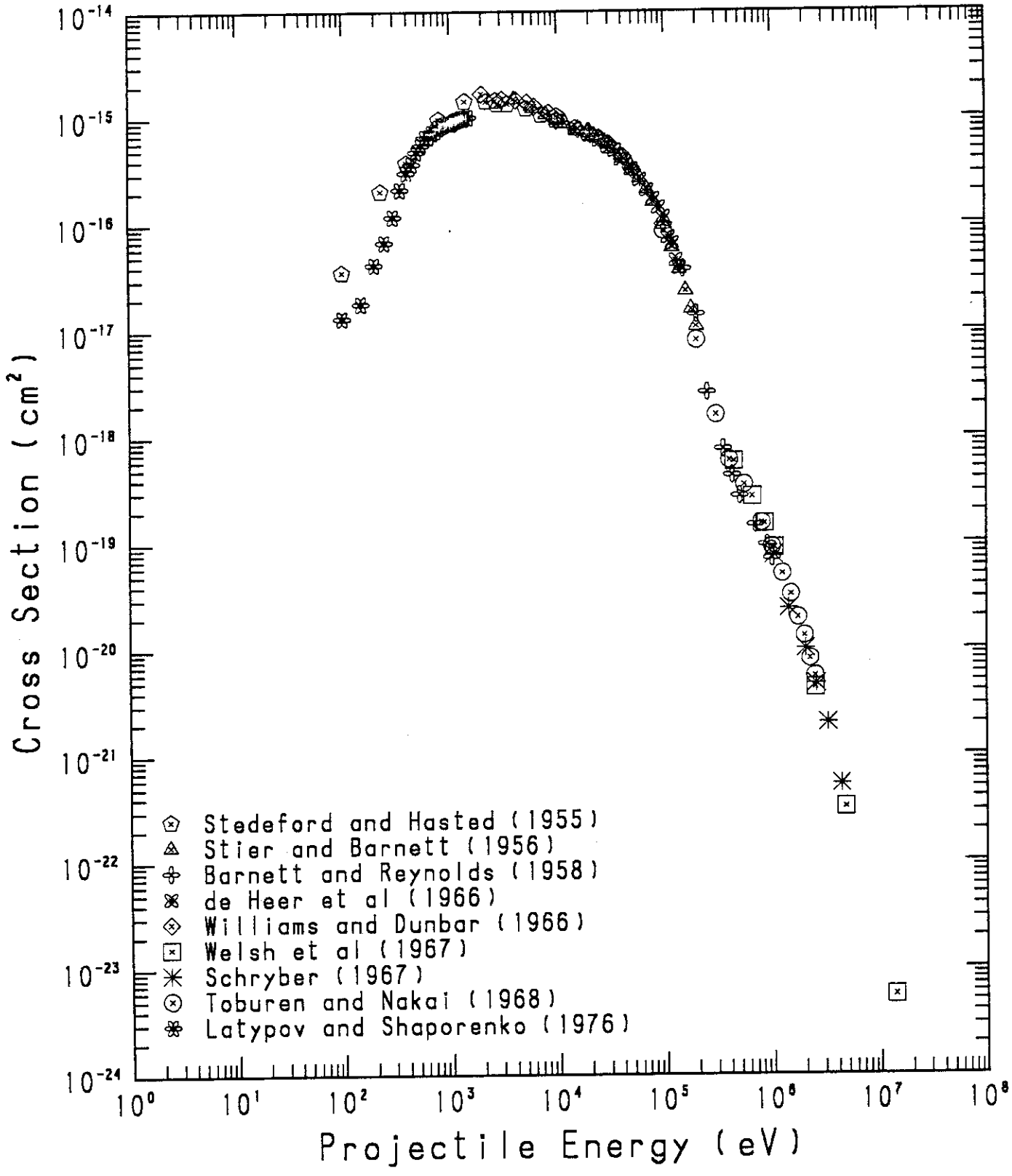

TABLE 3

PROCESS : H+ + AR = H (10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+02	1.39E-01	3.55E-17
2.30E+02	2.11E-01	2.03E-16
4.00E+02	2.78E-01	3.78E-16
8.00E+02	3.93E-01	9.64E-16
1.40E+03	5.20E-01	1.43E-15
2.20E+03	6.52E-01	1.42E-15
2.70E+03	7.22E-01	1.45E-15
2.80E+03	7.35E-01	1.34E-15
3.50E+03	8.22E-01	1.35E-15
5.20E+03	1.00E+00	1.22E-15
7.20E+03	1.18E+00	1.06E-15
1.00E+04	1.39E+00	1.03E-15
1.50E+04	1.70E+00	7.92E-16
2.00E+04	1.96E+00	6.98E-16
3.00E+04	2.41E+00	5.30E-16
4.00E+04	2.78E+00	4.34E-16

STIER AND BARNETT, PHYS. REV. 103 896 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+03	8.79E-01	1.50E-15
6.00E+03	1.08E+00	1.23E-15
8.00E+03	1.24E+00	1.08E-15
1.00E+04	1.39E+00	9.51E-16
1.20E+04	1.52E+00	8.88E-16
1.60E+04	1.76E+00	7.85E-16
2.00E+04	1.96E+00	7.23E-16
2.50E+04	2.20E+00	6.45E-16
3.00E+04	2.41E+00	5.63E-16
4.00E+04	2.78E+00	4.39E-16
5.00E+04	3.11E+00	3.46E-16
6.00E+04	3.40E+00	2.67E-16
7.00E+04	3.68E+00	2.10E-16
8.00E+04	3.93E+00	1.60E-16
1.00E+05	4.39E+00	9.75E-17
1.20E+05	4.81E+00	5.94E-17
1.40E+05	5.20E+00	3.74E-17
1.60E+05	5.56E+00	2.33E-17
1.80E+05	5.89E+00	1.57E-17
2.00E+05	6.21E+00	1.08E-17

TABLE 3 -CONTINUED

BARNETT AND REYNOLDS, PHYS. REV. 109 355 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	9.45E-16
2.00E+04	1.96E+00	7.41E-16
5.00E+04	3.11E+00	3.35E-16
1.00E+05	4.39E+00	9.84E-17
1.50E+05	5.38E+00	3.75E-17
2.00E+05	6.21E+00	1.41E-17
2.50E+05	6.95E+00	2.60E-18
3.50E+05	8.22E+00	7.63E-19
4.25E+05	9.06E+00	4.31E-19
5.00E+05	9.82E+00	2.75E-19
7.00E+05	1.16E+01	1.47E-19
9.00E+05	1.32E+01	9.53E-20
1.00E+06	1.39E+01	7.09E-20

DE HEER ET AL, PHYSICA 32 1766 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	9.35E-16
1.50E+04	1.70E+00	7.92E-16
2.00E+04	1.96E+00	7.04E-16
2.50E+04	2.20E+00	6.15E-16
3.00E+04	2.41E+00	5.35E-16
3.50E+04	2.60E+00	4.90E-16
4.00E+04	2.78E+00	4.03E-16
5.00E+04	3.11E+00	3.25E-16
6.00E+04	3.40E+00	2.57E-16
7.00E+04	3.68E+00	2.05E-16
8.00E+04	3.93E+00	1.70E-16
9.00E+04	4.17E+00	1.41E-16
1.00E+05	4.39E+00	1.15E-16
1.10E+05	4.61E+00	7.40E-17
1.20E+05	4.81E+00	6.50E-17
1.30E+05	5.01E+00	4.50E-17
1.40E+05	5.20E+00	3.80E-17

WILLIAMS AND DUNBAR, PHYS. REV. 149 62 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.68E-15
3.10E+03	7.73E-01	1.50E-15
4.20E+03	9.00E-01	1.46E-15
5.30E+03	1.01E+00	1.39E-15
6.20E+03	1.09E+00	1.28E-15

TABLE 3 -CONTINUED

8.50E+03	1.28E+00	1.12E-15
1.00E+04	1.39E+00	9.63E-16
1.60E+04	1.76E+00	7.79E-16
2.10E+04	2.01E+00	6.89E-16
2.60E+04	2.24E+00	6.23E-16
3.10E+04	2.45E+00	5.63E-16
4.20E+04	2.85E+00	4.25E-16
5.20E+04	3.17E+00	3.15E-16

WELSH ET AL, PHYS. REV. 158 85 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.40E+05	9.21E+00	5.80E-19
6.54E+05	1.12E+01	2.70E-19
8.51E+05	1.28E+01	1.50E-19
1.06E+06	1.43E+01	8.90E-20
2.51E+06	2.20E+01	4.30E-21
4.79E+06	3.04E+01	3.20E-22
1.38E+07	5.16E+01	5.50E-24

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.04E+06	1.42E+01	7.60E-20
1.43E+06	1.66E+01	2.40E-20
2.05E+06	1.99E+01	1.00E-20
2.56E+06	2.22E+01	4.70E-21
3.28E+06	2.52E+01	2.00E-21
4.37E+06	2.90E+01	5.30E-22

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	8.54E-17
2.00E+05	6.21E+00	8.04E-18
3.00E+05	7.61E+00	1.59E-18
4.00E+05	8.79E+00	5.96E-19
5.50E+05	1.03E+01	3.50E-19
8.00E+05	1.24E+01	1.52E-19
1.00E+06	1.39E+01	8.99E-20
1.25E+06	1.55E+01	5.08E-20
1.50E+06	1.70E+01	3.25E-20
1.75E+06	1.84E+01	1.96E-20
2.00E+06	1.96E+01	1.32E-20

TABLE 3 -CONTINUED

2.25E+06	2.08E+01	8.02E-21
2.50E+06	2.20E+01	5.50E-21

LATYPOV AND SHAPORENKO, SOV. PHYS. TP 21 1277 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+02	1.39E-01	1.31E-17
1.50E+02	1.70E-01	1.79E-17
2.00E+02	1.96E-01	4.15E-17
2.50E+02	2.20E-01	6.72E-17
3.00E+02	2.41E-01	1.17E-16
3.50E+02	2.60E-01	2.11E-16
4.00E+02	2.78E-01	3.04E-16
4.50E+02	2.95E-01	3.67E-16
5.00E+02	3.11E-01	4.77E-16
5.50E+02	3.26E-01	5.51E-16
6.00E+02	3.40E-01	6.55E-16
6.50E+02	3.54E-01	6.63E-16
7.00E+02	3.68E-01	7.22E-16
7.50E+02	3.80E-01	7.52E-16
8.00E+02	3.93E-01	8.07E-16
8.50E+02	4.05E-01	8.40E-16
9.00E+02	4.17E-01	8.63E-16
9.50E+02	4.28E-01	8.86E-16
1.00E+03	4.39E-01	8.83E-16
1.05E+03	4.50E-01	8.81E-16
1.10E+03	4.61E-01	9.18E-16
1.15E+03	4.71E-01	9.43E-16
1.20E+03	4.81E-01	9.54E-16
1.25E+03	4.91E-01	9.66E-16
1.30E+03	5.01E-01	9.92E-16
1.35E+03	5.10E-01	9.75E-16
1.40E+03	5.20E-01	1.00E-15
1.50E+03	5.38E-01	1.01E-15

Fig. 4 $H^+ + Kr \rightarrow H \quad (\sigma_{10})$

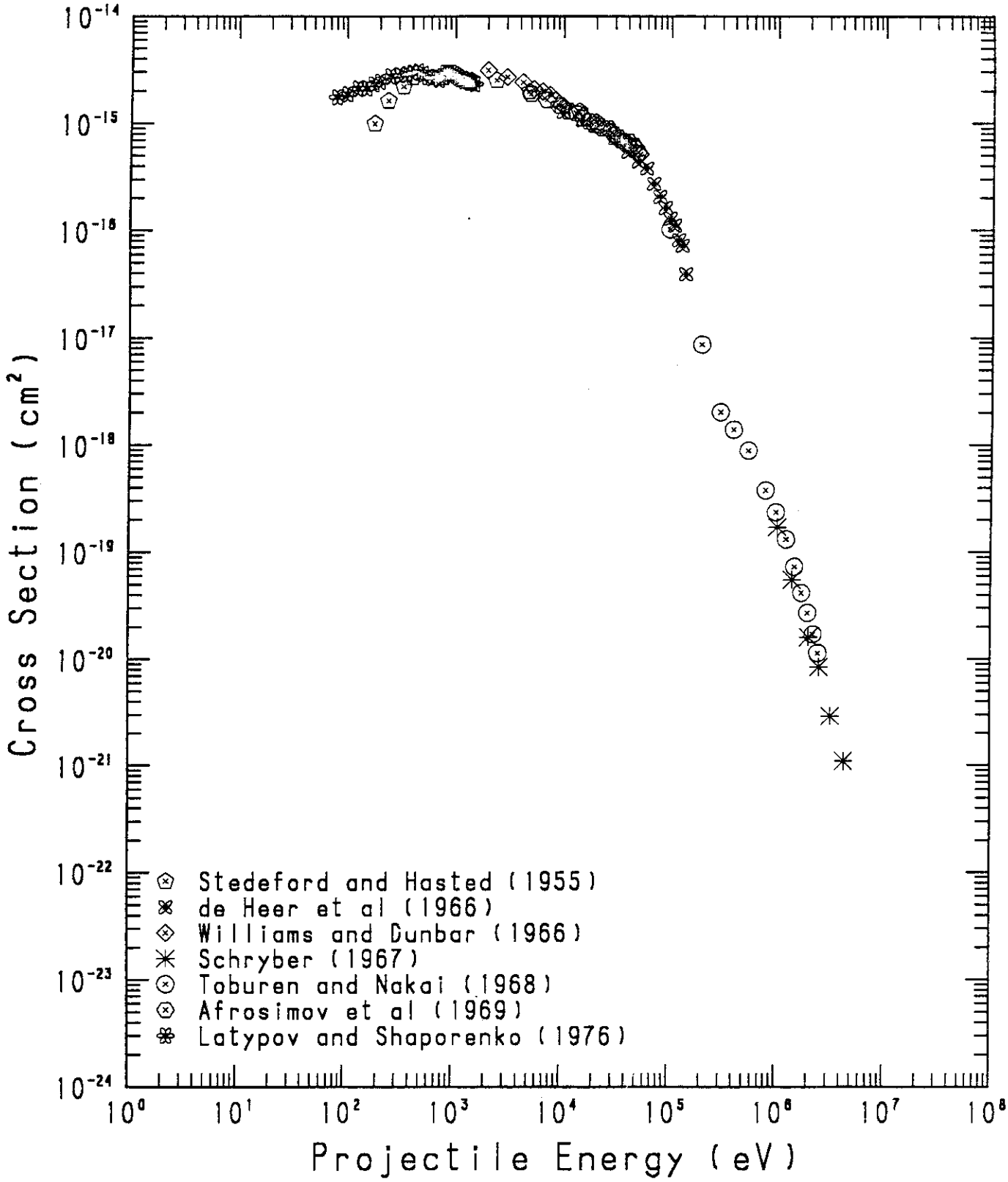

TABLE 4

PROCESS : H+ + KR = H (10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.80E+02	1.86E-01	9.91E-16
2.40E+02	2.15E-01	1.62E-15
3.30E+02	2.52E-01	2.19E-15
4.00E+02	2.78E-01	2.66E-15
7.60E+02	3.83E-01	2.67E-15
1.40E+03	5.20E-01	2.47E-15
2.40E+03	6.81E-01	2.51E-15
4.80E+03	9.62E-01	1.97E-15
9.50E+03	1.35E+00	1.44E-15
1.40E+04	1.64E+00	1.29E-15
2.00E+04	1.96E+00	1.02E-15
4.00E+04	2.78E+00	6.38E-16

DE HEER ET AL, PHYSICA 32 1766 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	1.28E-15
1.50E+04	1.70E+00	1.07E-15
2.00E+04	1.96E+00	9.73E-16
2.50E+04	2.20E+00	8.70E-16
3.00E+04	2.41E+00	7.25E-16
3.50E+04	2.60E+00	6.75E-16
4.00E+04	2.78E+00	5.41E-16
5.00E+04	3.11E+00	4.42E-16
6.00E+04	3.40E+00	3.77E-16
7.00E+04	3.68E+00	2.71E-16
8.00E+04	3.93E+00	2.05E-16
9.00E+04	4.17E+00	1.62E-16
1.00E+05	4.39E+00	1.29E-16
1.10E+05	4.61E+00	1.11E-16
1.20E+05	4.81E+00	8.10E-17
1.30E+05	5.01E+00	7.20E-17
1.40E+05	5.20E+00	3.90E-17

WILLIAMS AND DUNBAR, PHYS. REV. 149 62 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	3.10E-15
3.00E+03	7.61E-01	2.69E-15
4.20E+03	9.00E-01	2.40E-15

TABLE 4 -CONTINUED

5.30E+03	1.01E+00	2.08E-15
6.40E+03	1.11E+00	1.98E-15
7.50E+03	1.20E+00	1.84E-15
8.40E+03	1.27E+00	1.65E-15
1.00E+04	1.39E+00	1.42E-15
1.50E+04	1.70E+00	1.18E-15
2.00E+04	1.96E+00	9.66E-16
2.60E+04	2.24E+00	8.55E-16
3.00E+04	2.41E+00	7.36E-16
3.60E+04	2.64E+00	6.46E-16
4.20E+04	2.85E+00	6.07E-16
4.70E+04	3.01E+00	6.01E-16
5.20E+04	3.17E+00	5.12E-16

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.04E+06	1.42E+01	1.70E-19
1.43E+06	1.66E+01	5.50E-20
2.05E+06	1.99E+01	1.60E-20
2.56E+06	2.22E+01	8.40E-21
3.28E+06	2.52E+01	2.90E-21
4.37E+06	2.90E+01	1.10E-21

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	1.02E-16
2.00E+05	6.21E+00	8.62E-18
3.00E+05	7.61E+00	2.01E-18
4.00E+05	8.79E+00	1.38E-18
5.50E+05	1.03E+01	8.82E-19
8.00E+05	1.24E+01	3.76E-19
1.00E+06	1.39E+01	2.34E-19
1.25E+06	1.55E+01	1.31E-19
1.50E+06	1.70E+01	7.29E-20
1.75E+06	1.84E+01	4.16E-20
2.00E+06	1.96E+01	2.70E-20
2.25E+06	2.08E+01	1.70E-20
2.50E+06	2.20E+01	1.13E-20

TABLE 4 -CONTINUED

AFROSIMOV ET AL, SOV. PHYS. TP 14 109 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	1.88E-15
7.00E+03	1.16E+00	1.65E-15
9.00E+03	1.32E+00	1.47E-15
1.10E+04	1.46E+00	1.30E-15
1.30E+04	1.58E+00	1.24E-15
1.50E+04	1.70E+00	1.12E-15
1.70E+04	1.81E+00	1.04E-15
1.90E+04	1.91E+00	9.75E-16
2.10E+04	2.01E+00	9.54E-16
2.30E+04	2.11E+00	8.94E-16
2.60E+04	2.24E+00	8.92E-16
2.90E+04	2.37E+00	7.89E-16
3.20E+04	2.48E+00	7.37E-16
3.60E+04	2.64E+00	6.85E-16
4.00E+04	2.78E+00	6.78E-16
4.50E+04	2.95E+00	6.14E-16
5.00E+04	3.11E+00	5.35E-16

LATYPOV AND SHAPORENKO, SOV. PHYS. TP 21 1277 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
8.00E+01	1.24E-01	1.75E-15
1.00E+02	1.39E-01	1.87E-15
1.25E+02	1.55E-01	2.10E-15
1.50E+02	1.70E-01	2.12E-15
1.75E+02	1.84E-01	2.31E-15
2.00E+02	1.96E-01	2.44E-15
2.50E+02	2.20E-01	2.73E-15
3.00E+02	2.41E-01	2.80E-15
3.50E+02	2.60E-01	2.87E-15
4.00E+02	2.78E-01	2.94E-15
4.50E+02	2.95E-01	3.01E-15
5.00E+02	3.11E-01	2.87E-15
5.50E+02	3.26E-01	2.69E-15
6.00E+02	3.40E-01	2.64E-15
6.50E+02	3.54E-01	2.71E-15
7.00E+02	3.68E-01	2.55E-15
7.50E+02	3.80E-01	2.73E-15
8.00E+02	3.93E-01	2.93E-15
8.50E+02	4.05E-01	2.93E-15
9.00E+02	4.17E-01	2.95E-15
9.50E+02	4.28E-01	2.86E-15
1.00E+03	4.39E-01	2.77E-15
1.05E+03	4.50E-01	2.68E-15
1.10E+03	4.61E-01	2.59E-15
1.15E+03	4.71E-01	2.58E-15

TABLE 4 －CONTINUED

1.20E+03	4.81E-01	2.46E-15
1.25E+03	4.91E-01	2.49E-15
1.30E+03	5.01E-01	2.45E-15
1.35E+03	5.10E-01	2.37E-15
1.40E+03	5.20E-01	2.37E-15
1.50E+03	5.38E-01	2.32E-15

Fig. 5 $H^+ + Xe \rightarrow H \quad (\sigma_{10})$

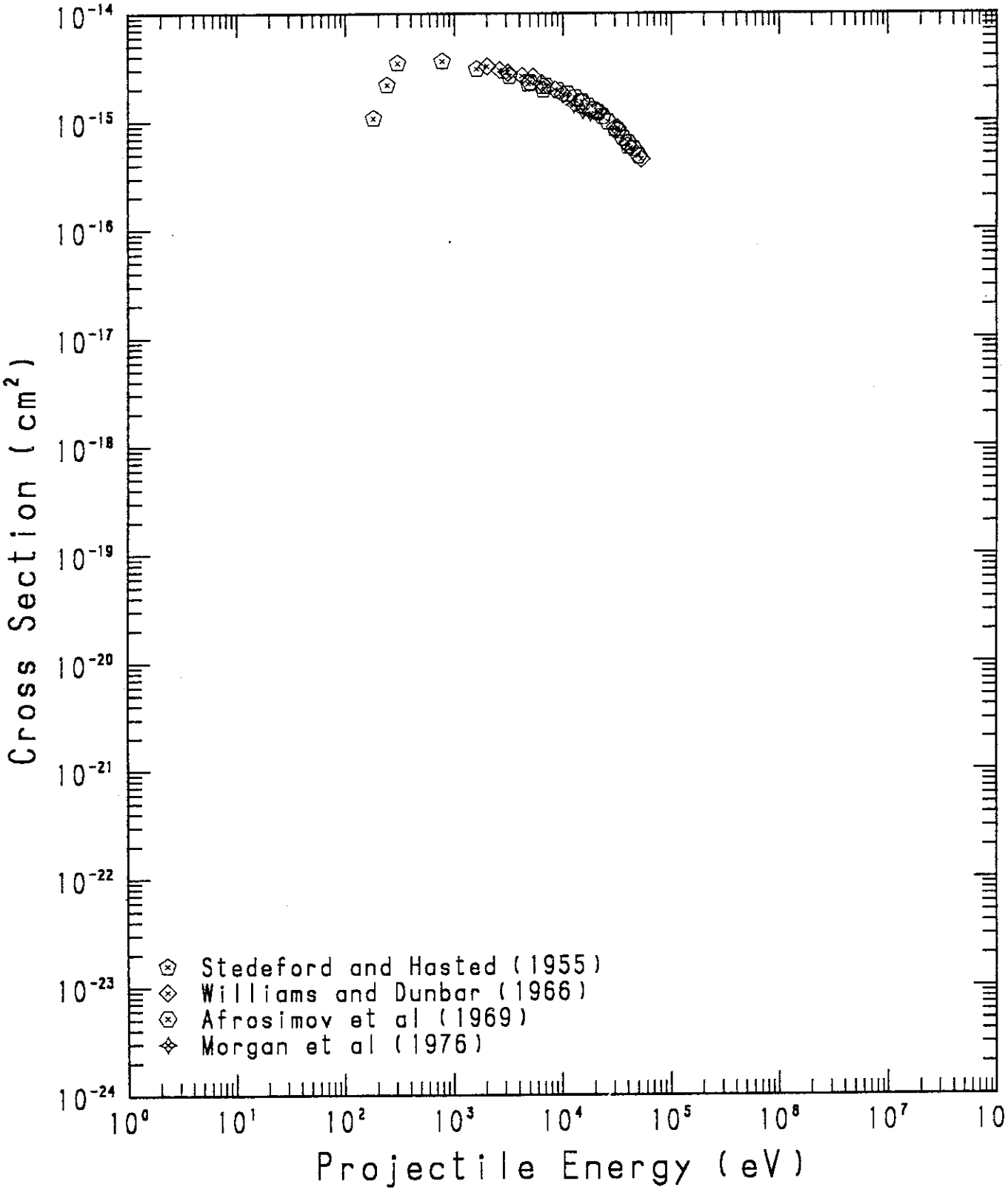

TABLE 5

PROCESS : H+ + XE = H (10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.80E+02	1.86E-01	1.07E-15
2.40E+02	2.15E-01	2.17E-15
3.00E+02	2.41E-01	3.45E-15
7.70E+02	3.85E-01	3.60E-15
1.60E+03	5.56E-01	3.05E-15
3.20E+03	7.86E-01	2.62E-15
4.80E+03	9.62E-01	2.21E-15
6.60E+03	1.13E+00	2.08E-15
6.60E+03	1.13E+00	1.94E-15
1.50E+04	1.70E+00	1.49E-15
2.00E+04	1.96E+00	1.24E-15
3.00E+04	2.41E+00	8.52E-16
4.00E+04	2.78E+00	5.89E-16

WILLIAMS AND DUNBAR, PHYS. REV. 149 62 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	3.22E-15
2.60E+03	7.08E-01	2.97E-15
3.10E+03	7.73E-01	2.82E-15
4.20E+03	9.00E-01	2.62E-15
5.30E+03	1.01E+00	2.57E-15
6.40E+03	1.11E+00	2.25E-15
8.50E+03	1.28E+00	1.95E-15
1.00E+04	1.39E+00	1.76E-15
1.60E+04	1.76E+00	1.32E-15
2.10E+04	2.01E+00	1.23E-15
3.20E+04	2.48E+00	8.62E-16
4.20E+04	2.85E+00	5.67E-16
5.30E+04	3.20E+00	4.45E-16

AFROSIMOV ET AL, SOV. PHYS. TP 14 109 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	2.29E-15
7.00E+03	1.16E+00	2.12E-15
9.00E+03	1.32E+00	1.92E-15
1.10E+04	1.46E+00	1.78E-15
1.30E+04	1.58E+00	1.64E-15
1.50E+04	1.70E+00	1.51E-15

TABLE 5 -CONTINUED

1.70E+04	1.81E+00	1.38E-15
1.90E+04	1.91E+00	1.27E-15
2.10E+04	2.01E+00	1.21E-15
2.30E+04	2.11E+00	1.11E-15
2.60E+04	2.24E+00	9.87E-16
3.20E+04	2.48E+00	8.18E-16
3.60E+04	2.64E+00	6.97E-16
4.00E+04	2.78E+00	6.33E-16
4.50E+04	2.95E+00	5.57E-16
5.00E+04	3.11E+00	4.80E-16

MORGAN ET AL, PHYS. REV. A14 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.25E+04	1.55E+00	1.41E-15
1.53E+04	1.72E+00	1.24E-15
1.80E+04	1.86E+00	1.18E-15

Fig. 6 H + He → H^- (σ_{0-1})

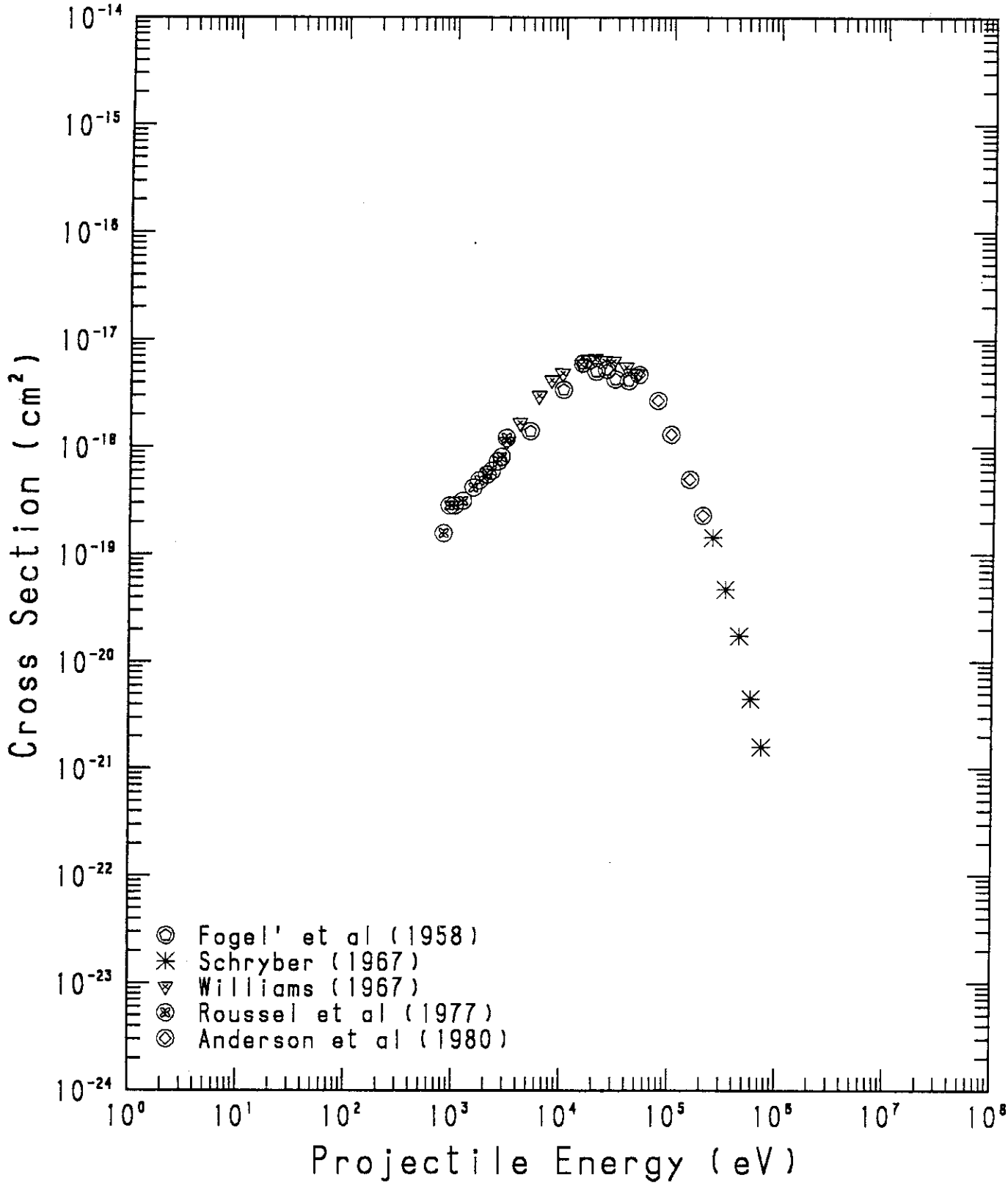

TABLE 6

PROCESS : H + HE = H- (0-1)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	1.39E-18
1.00E+04	1.39E+00	3.39E-18
1.50E+04	1.70E+00	5.97E-18
2.00E+04	1.96E+00	5.01E-18
2.50E+04	2.20E+00	5.23E-18
3.00E+04	2.41E+00	4.27E-18
4.00E+04	2.78E+00	4.12E-18

SCHRYBER, HELV. PHYS. ACTA A40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.50E+05	6.95E+00	1.43E-19
3.30E+05	7.98E+00	4.71E-20
4.50E+05	9.32E+00	1.74E-20
5.80E+05	1.06E+01	4.51E-21
7.30E+05	1.19E+01	1.59E-21

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	5.64E-19
3.00E+03	7.61E-01	1.11E-18
4.00E+03	8.79E-01	1.66E-18
6.00E+03	1.08E+00	2.98E-18
7.80E+03	1.23E+00	4.16E-18
9.80E+03	1.38E+00	4.84E-18
1.45E+04	1.67E+00	5.87E-18
1.70E+04	1.81E+00	6.37E-18
1.95E+04	1.94E+00	6.57E-18
2.40E+04	2.15E+00	6.32E-18
2.90E+04	2.37E+00	6.26E-18
3.80E+04	2.71E+00	5.50E-18
4.40E+04	2.91E+00	4.87E-18
4.80E+04	3.04E+00	4.78E-18

TABLE 6 -CONTINUED

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
8.00E+02	3.93E-01	1.56E-19
9.00E+02	4.17E-01	2.83E-19
1.00E+03	4.39E-01	2.83E-19
1.20E+03	4.81E-01	3.14E-19
1.50E+03	5.38E-01	4.17E-19
1.70E+03	5.73E-01	4.87E-19
2.00E+03	6.21E-01	5.51E-19
2.20E+03	6.52E-01	5.98E-19
2.50E+03	6.95E-01	7.29E-19
2.70E+03	7.22E-01	8.00E-19
3.00E+03	7.61E-01	1.20E-18

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	4.70E-18
7.50E+04	3.80E+00	2.70E-18
1.00E+05	4.39E+00	1.30E-18
1.50E+05	5.38E+00	5.00E-19
2.00E+05	6.21E+00	2.30E-19

Fig. 7 H + Ne → H^- (σ_{0-1})

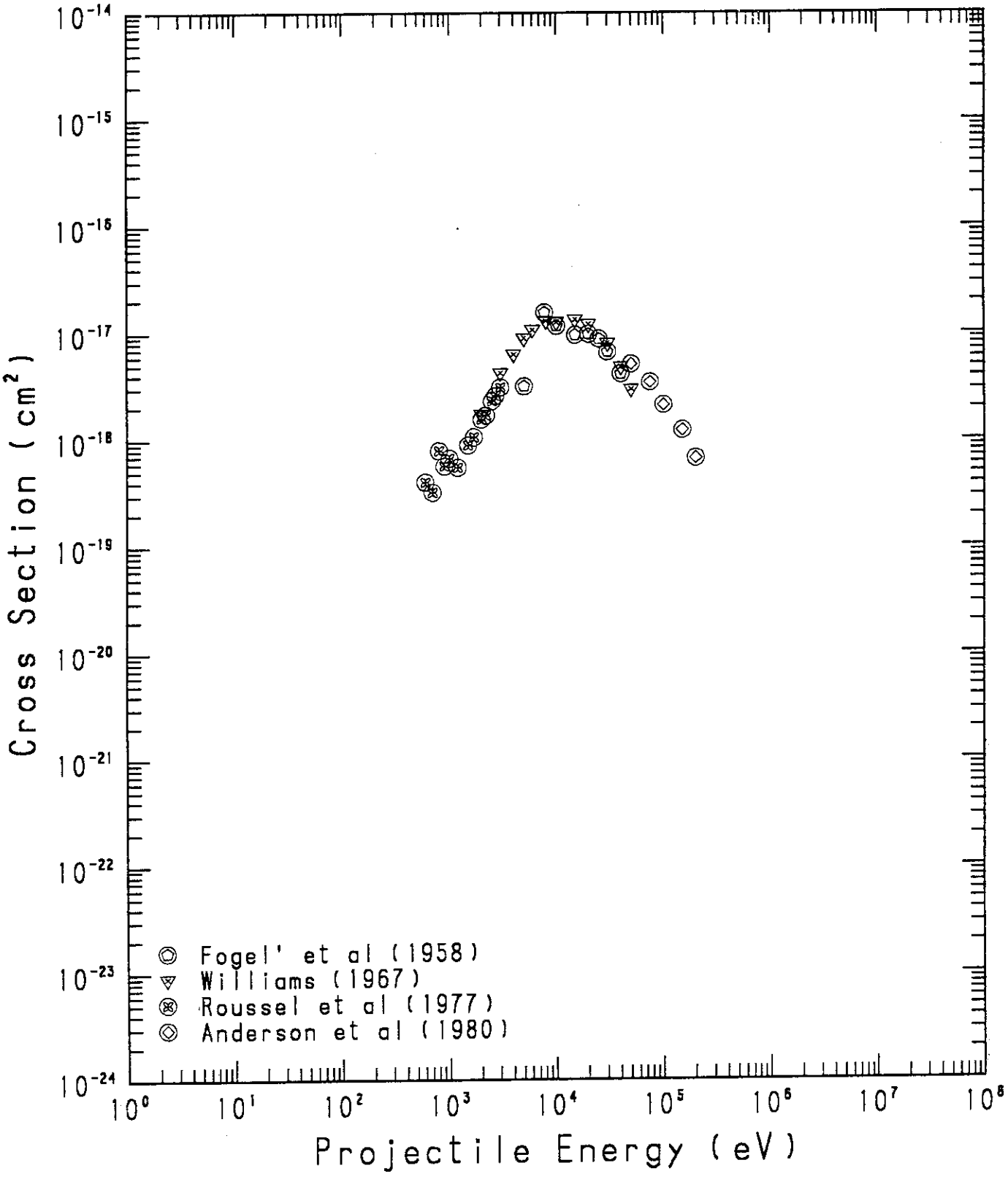

TABLE 7

PROCESS : H + NE = H- (0-1)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.17E-18
7.75E+03	1.22E+00	1.55E-17
1.00E+04	1.39E+00	1.16E-17
1.50E+04	1.70E+00	9.52E-18
2.00E+04	1.96E+00	9.73E-18
2.50E+04	2.20E+00	8.77E-18
3.00E+04	2.41E+00	6.63E-18
4.00E+04	2.78E+00	4.13E-18

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.73E-18
3.00E+03	7.61E-01	4.25E-18
4.00E+03	8.79E-01	6.32E-18
5.00E+03	9.82E-01	8.93E-18
6.00E+03	1.08E+00	1.07E-17
8.00E+03	1.24E+00	1.29E-17
1.00E+04	1.39E+00	1.26E-17
1.50E+04	1.70E+00	1.33E-17
2.00E+04	1.96E+00	1.20E-17
3.00E+04	2.41E+00	7.97E-18
4.00E+04	2.78E+00	4.80E-18
5.00E+04	3.11E+00	2.95E-18

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
6.00E+02	3.40E-01	4.04E-19
7.00E+02	3.68E-01	3.25E-19
8.00E+02	3.93E-01	7.92E-19
9.00E+02	4.17E-01	5.72E-19
1.00E+03	4.39E-01	6.73E-19
1.20E+03	4.81E-01	5.54E-19
1.50E+03	5.38E-01	8.92E-19
1.70E+03	5.73E-01	1.06E-18
2.00E+03	6.21E-01	1.55E-18
2.20E+03	6.52E-01	1.69E-18
2.50E+03	6.95E-01	2.31E-18
2.70E+03	7.22E-01	2.58E-18

TABLE 7 -CONTINUED

3.00E+03	7.61E-01	3.10E-18

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	5.09E-18
7.50E+04	3.80E+00	3.44E-18
1.00E+05	4.39E+00	2.10E-18
1.50E+05	5.38E+00	1.22E-18
2.00E+05	6.21E+00	6.70E-19

Fig. 8 H + Ar → H^- (σ_{0-1})

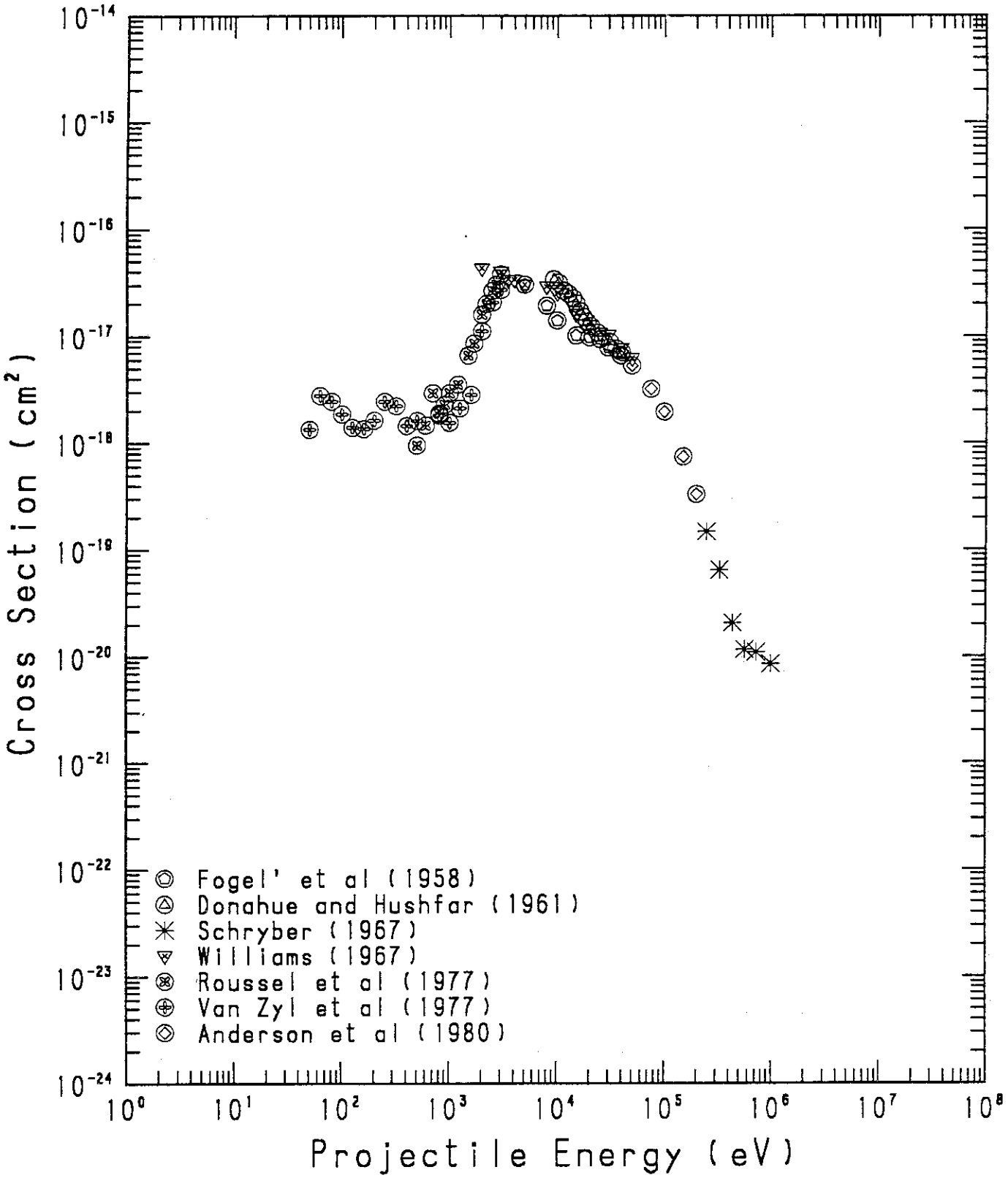

TABLE 8

PROCESS : H + AR = H- (0-1)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.03E-17
8.00E+03	1.24E+00	1.92E-17
1.00E+04	1.39E+00	1.40E-17
1.50E+04	1.70E+00	1.01E-17
2.00E+04	1.96E+00	9.73E-18
2.50E+04	2.20E+00	9.36E-18
3.00E+04	2.41E+00	7.82E-18
4.00E+04	2.78E+00	7.08E-18

DONAHUE AND HUSHFAR, PHYS. REV. 124 138 (1961)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.36E+03	1.34E+00	3.40E-17
1.03E+04	1.41E+00	3.15E-17
1.15E+04	1.49E+00	2.65E-17
1.27E+04	1.57E+00	2.49E-17
1.40E+04	1.64E+00	2.26E-17
1.50E+04	1.70E+00	2.02E-17
1.64E+04	1.78E+00	1.70E-17
1.75E+04	1.84E+00	1.51E-17
1.90E+04	1.91E+00	1.36E-17
2.05E+04	1.99E+00	1.24E-17
2.38E+04	2.14E+00	1.07E-17
3.09E+04	2.44E+00	8.79E-18
3.55E+04	2.62E+00	7.63E-18
3.92E+04	2.75E+00	6.61E-18

SCHRYBER, HELV. PHYS. ACTA A40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.50E+05	6.95E+00	1.47E-19
3.30E+05	7.98E+00	6.45E-20
4.40E+05	9.21E+00	2.07E-20
5.70E+05	1.05E+01	1.16E-20
7.30E+05	1.19E+01	1.09E-20
1.00E+06	1.39E+01	8.49E-21

TABLE 8 -CONTINUED

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	4.33E-17
3.00E+03	7.61E-01	4.02E-17
3.50E+03	8.22E-01	3.40E-17
4.00E+03	8.79E-01	3.38E-17
5.00E+03	9.82E-01	3.03E-17
8.00E+03	1.24E+00	2.92E-17
1.00E+04	1.39E+00	2.54E-17
1.50E+04	1.70E+00	1.62E-17
2.00E+04	1.96E+00	1.27E-17
2.50E+04	2.20E+00	1.07E-17
3.00E+04	2.41E+00	1.03E-17
4.00E+04	2.78E+00	7.77E-18
5.00E+04	3.11E+00	6.24E-18

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	9.44E-19
6.00E+02	3.40E-01	1.45E-18
7.00E+02	3.68E-01	2.93E-18
8.00E+02	3.93E-01	1.88E-18
9.00E+02	4.17E-01	2.28E-18
1.00E+03	4.39E-01	2.93E-18
1.20E+03	4.81E-01	3.52E-18
1.50E+03	5.38E-01	6.59E-18
1.70E+03	5.73E-01	8.54E-18
2.00E+03	6.21E-01	1.59E-17
2.20E+03	6.52E-01	2.00E-17
2.50E+03	6.95E-01	2.65E-17
2.70E+03	7.22E-01	3.02E-17
3.00E+03	7.61E-01	3.79E-17

VAN ZYL ET AL, PHYS. REV. A15 1871 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+01	9.82E-02	1.33E-18
6.30E+01	1.10E-01	2.77E-18
8.00E+01	1.24E-01	2.45E-18
1.00E+02	1.39E-01	1.85E-18
1.25E+02	1.55E-01	1.39E-18
1.60E+02	1.76E-01	1.35E-18
2.00E+02	1.96E-01	1.62E-18
2.50E+02	2.20E-01	2.44E-18

TABLE 8 -CONTINUED

3.20E+02	2.48E-01	2.22E-18
4.00E+02	2.78E-01	1.44E-18
5.00E+02	3.11E-01	1.61E-18
8.00E+02	3.93E-01	1.81E-18
1.00E+03	4.39E-01	1.54E-18
1.25E+03	4.91E-01	2.10E-18
1.60E+03	5.56E-01	2.82E-18
2.00E+03	6.21E-01	1.11E-17
2.50E+03	6.95E-01	2.06E-17
3.00E+03	7.61E-01	2.71E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	5.30E-18
7.50E+04	3.80E+00	3.20E-18
1.00E+05	4.39E+00	1.95E-18
1.50E+05	5.38E+00	7.40E-19
2.00E+05	6.21E+00	3.30E-19

Fig. 9 H + Kr → H^- (σ_{0-1})

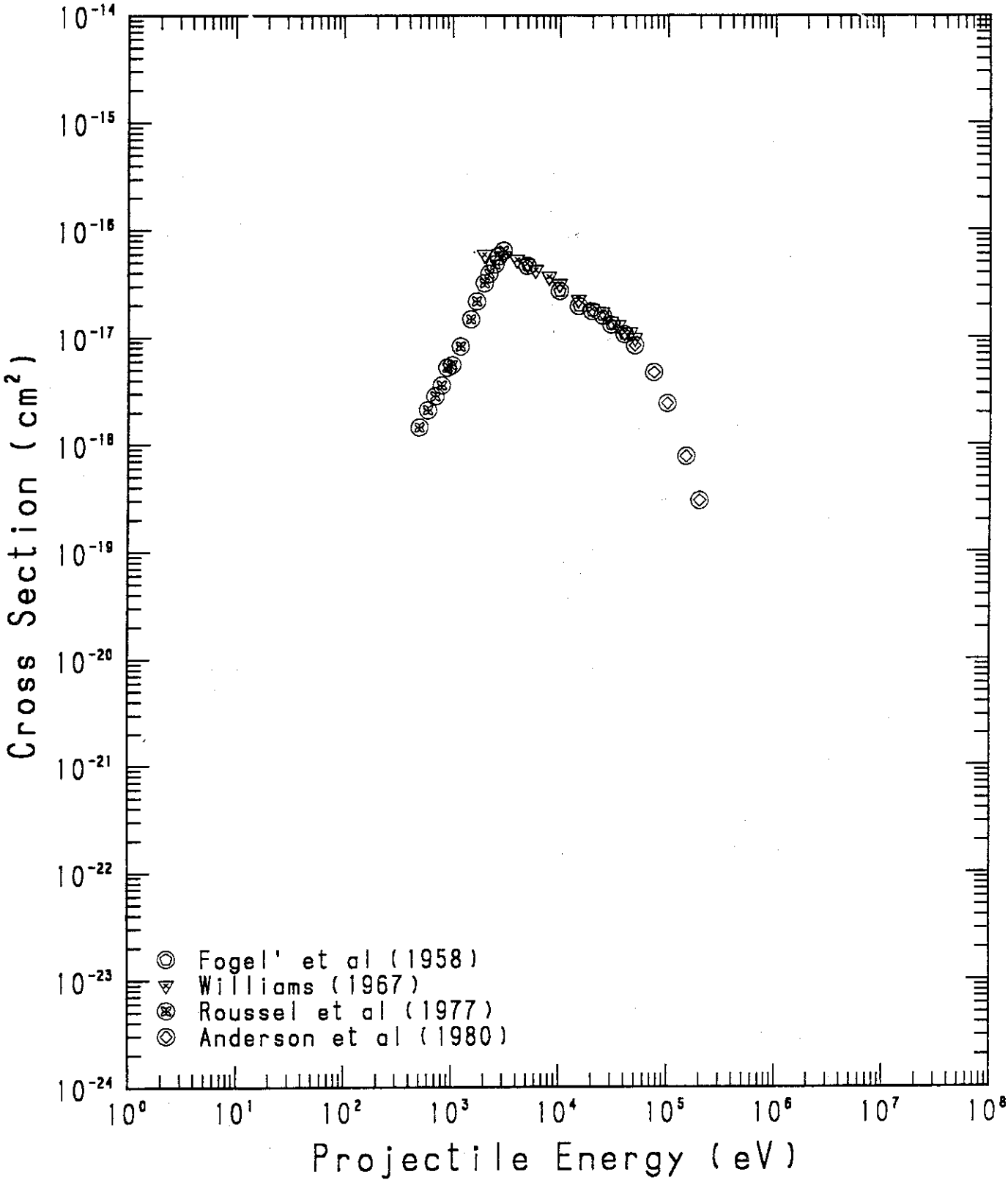

TABLE 9

PROCESS : H + KR = H- (0-1)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	4.62E-17
1.00E+04	1.39E+00	2.69E-17
1.50E+04	1.70E+00	1.95E-17
2.00E+04	1.96E+00	1.74E-17
2.50E+04	2.20E+00	1.58E-17
3.00E+04	2.41E+00	1.31E-17
4.00E+04	2.78E+00	1.06E-17

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	5.88E-17
3.00E+03	7.61E-01	5.75E-17
4.00E+03	8.79E-01	5.28E-17
5.00E+03	9.82E-01	4.84E-17
6.00E+03	1.08E+00	4.22E-17
8.00E+03	1.24E+00	3.65E-17
1.00E+04	1.39E+00	3.12E-17
1.50E+04	1.70E+00	2.23E-17
2.00E+04	1.96E+00	1.83E-17
2.50E+04	2.20E+00	1.71E-17
3.00E+04	2.41E+00	1.39E-17
3.50E+04	2.60E+00	1.29E-17
4.00E+04	2.78E+00	1.11E-17
4.50E+04	2.95E+00	1.10E-17
5.00E+04	3.11E+00	9.78E-18

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	1.44E-18
6.00E+02	3.40E-01	2.09E-18
7.00E+02	3.68E-01	2.82E-18
8.00E+02	3.93E-01	3.56E-18
9.00E+02	4.17E-01	5.22E-18
1.00E+03	4.39E-01	5.50E-18
1.20E+03	4.81E-01	8.19E-18
1.50E+03	5.38E-01	1.47E-17
1.70E+03	5.73E-01	2.16E-17
2.00E+03	6.21E-01	3.19E-17

TABLE 9 -CONTINUED

2.20E+03	6.52E-01	3.90E-17
2.50E+03	6.95E-01	4.76E-17
2.70E+03	7.22E-01	5.70E-17
3.00E+03	7.61E-01	6.39E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	8.36E-18
7.50E+04	3.80E+00	4.70E-18
1.00E+05	4.39E+00	2.41E-18
1.50E+05	5.38E+00	7.70E-19
2.00E+05	6.21E+00	3.00E-19

Fig.10 H + Xe → H^- (σ_{0-1})

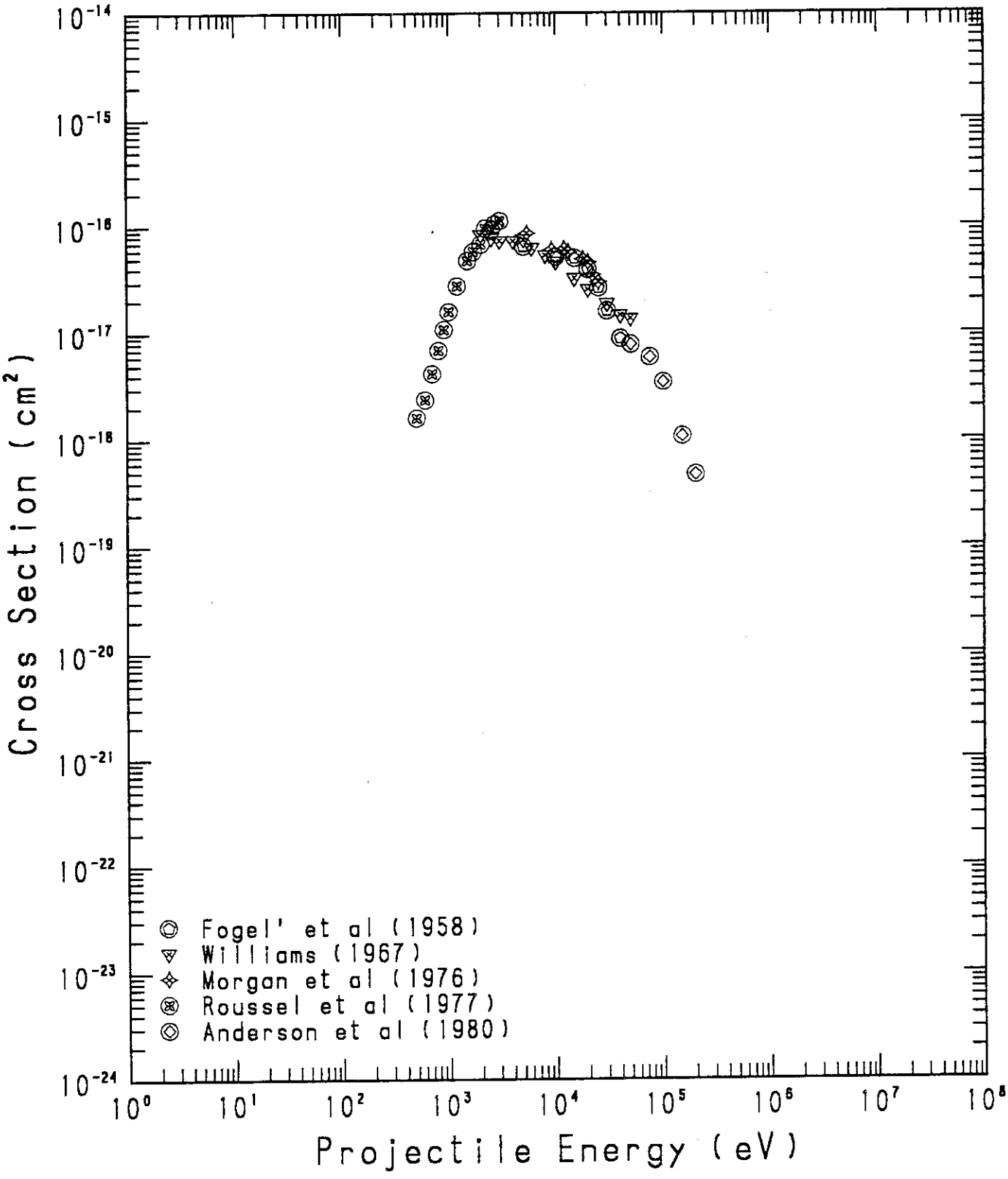

TABLE 10

PROCESS : H + XE = H- (0-1)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	6.43E-17
1.00E+04	1.39E+00	5.17E-17
1.50E+04	1.70E+00	5.02E-17
2.00E+04	1.96E+00	3.92E-17
2.50E+04	2.20E+00	2.64E-17
3.00E+04	2.41E+00	1.60E-17
4.00E+04	2.78E+00	8.84E-18

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	8.37E-17
2.50E+03	6.95E-01	7.76E-17
3.00E+03	7.61E-01	7.33E-17
4.00E+03	8.79E-01	7.30E-17
5.00E+03	9.82E-01	7.57E-17
6.00E+03	1.08E+00	6.27E-17
8.00E+03	1.24E+00	5.36E-17
1.00E+04	1.39E+00	4.63E-17
1.50E+04	1.70E+00	3.24E-17
2.00E+04	1.96E+00	2.55E-17
3.00E+04	2.41E+00	1.88E-17
4.00E+04	2.78E+00	1.46E-17
5.00E+04	3.11E+00	1.36E-17

MORGAN ET AL, PHYS. REV. A14 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.40E+03	1.02E+00	8.60E-17
9.20E+03	1.33E+00	6.00E-17
1.20E+04	1.52E+00	6.10E-17
1.32E+04	1.60E+00	5.70E-17
1.80E+04	1.86E+00	4.90E-17
2.00E+04	1.96E+00	4.60E-17
2.20E+04	2.06E+00	3.50E-17
2.50E+04	2.20E+00	3.00E-17

TABLE 10 -CONTINUED

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	1.60E-18
6.00E+02	3.40E-01	2.37E-18
7.00E+02	3.68E-01	4.18E-18
8.00E+02	3.93E-01	6.91E-18
9.00E+02	4.17E-01	1.08E-17
1.00E+03	4.39E-01	1.59E-17
1.20E+03	4.81E-01	2.77E-17
1.50E+03	5.38E-01	4.77E-17
1.70E+03	5.73E-01	5.79E-17
2.00E+03	6.21E-01	6.79E-17
2.20E+03	6.52E-01	9.57E-17
2.50E+03	6.95E-01	9.26E-17
2.70E+03	7.22E-01	1.05E-16
3.00E+03	7.61E-01	1.12E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	7.78E-18
7.50E+04	3.80E+00	5.90E-18
1.00E+05	4.39E+00	3.45E-18
1.50E+05	5.38E+00	1.07E-18
2.00E+05	6.21E+00	4.70E-19

Fig.11 $H^+ + He \rightarrow H^- (\sigma_{1-1})$

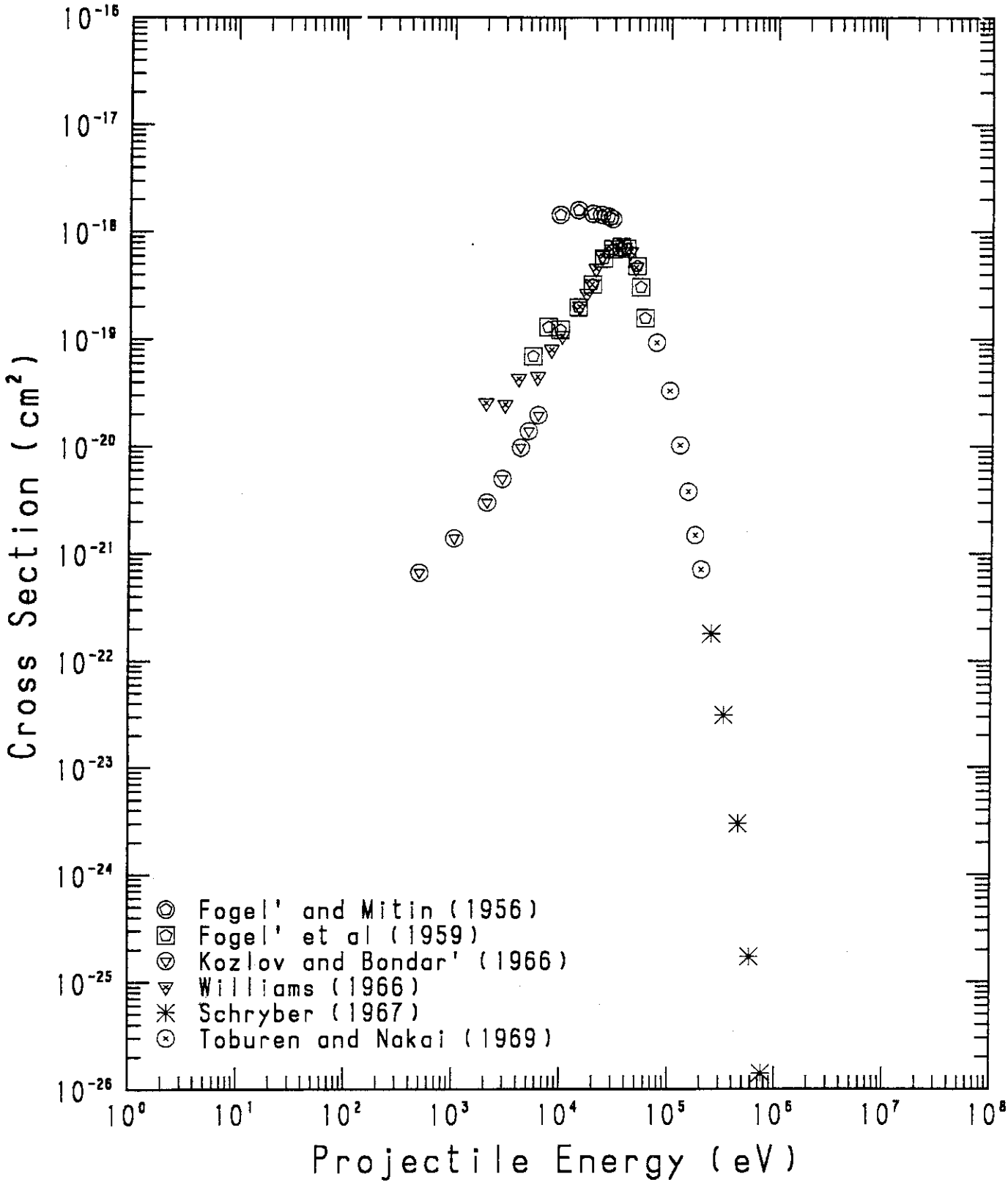

TABLE 11

PROCESS : H+ + HE = H- (1-1)

FOGEL' AND MITIN, SOV. PHYS. JETP 3 334 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.50E+03	1.35E+00	1.44E-18
1.40E+04	1.64E+00	1.59E-18
1.90E+04	1.91E+00	1.47E-18
2.30E+04	2.11E+00	1.44E-18
2.70E+04	2.28E+00	1.38E-18
2.90E+04	2.37E+00	1.32E-18

FOGEL' ET AL, SOV. PHYS. JETP 8 390 (1959)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.42E+03	1.02E+00	6.90E-20
7.46E+03	1.20E+00	1.29E-19
9.60E+03	1.36E+00	1.22E-19
1.41E+04	1.65E+00	1.98E-19
1.91E+04	1.92E+00	3.24E-19
2.41E+04	2.16E+00	5.65E-19
2.93E+04	2.38E+00	6.90E-19
3.49E+04	2.60E+00	7.26E-19
3.94E+04	2.76E+00	6.99E-19
4.91E+04	3.08E+00	4.80E-19
5.32E+04	3.20E+00	3.06E-19
5.84E+04	3.36E+00	1.57E-19

KOZLOV AND BONDAR', SOV. PHYS. JETP 23 195 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.94E+02	3.09E-01	6.64E-22
1.03E+03	4.46E-01	1.39E-21
2.06E+03	6.30E-01	3.01E-21
2.84E+03	7.40E-01	5.00E-21
4.20E+03	9.00E-01	9.69E-21
4.98E+03	9.80E-01	1.38E-20
6.10E+03	1.08E+00	1.95E-20

TABLE 11 -CONTINUED

WILLIAMS, PHYS. REV. 150 7 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	2.53E-20
3.00E+03	7.61E-01	2.44E-20
4.00E+03	8.79E-01	4.28E-20
6.00E+03	1.08E+00	4.44E-20
8.00E+03	1.24E+00	7.97E-20
1.00E+04	1.39E+00	1.07E-19
1.45E+04	1.67E+00	2.01E-19
1.68E+04	1.80E+00	2.65E-19
1.88E+04	1.90E+00	3.24E-19
2.04E+04	1.98E+00	4.55E-19
2.34E+04	2.12E+00	5.99E-19
2.82E+04	2.33E+00	6.92E-19
3.22E+04	2.49E+00	7.57E-19
3.72E+04	2.68E+00	7.18E-19
4.25E+04	2.86E+00	6.52E-19
4.77E+04	3.03E+00	4.65E-19

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.53E+05	6.99E+00	1.80E-22
3.33E+05	8.02E+00	3.10E-23
4.55E+05	9.37E+00	3.00E-24
5.85E+05	1.06E+01	1.70E-25
7.49E+05	1.20E+01	1.40E-26

TOBUREN AND NAKAI, PHYS. REV. 177 191 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
7.50E+04	3.80E+00	9.27E-20
1.00E+05	4.39E+00	3.29E-20
1.25E+05	4.91E+00	1.02E-20
1.50E+05	5.38E+00	3.80E-21
1.75E+05	5.81E+00	1.49E-21
2.00E+05	6.21E+00	7.12E-22

Fig.12 $H^+ + Ne \rightarrow H^- (\sigma_{1-1})$

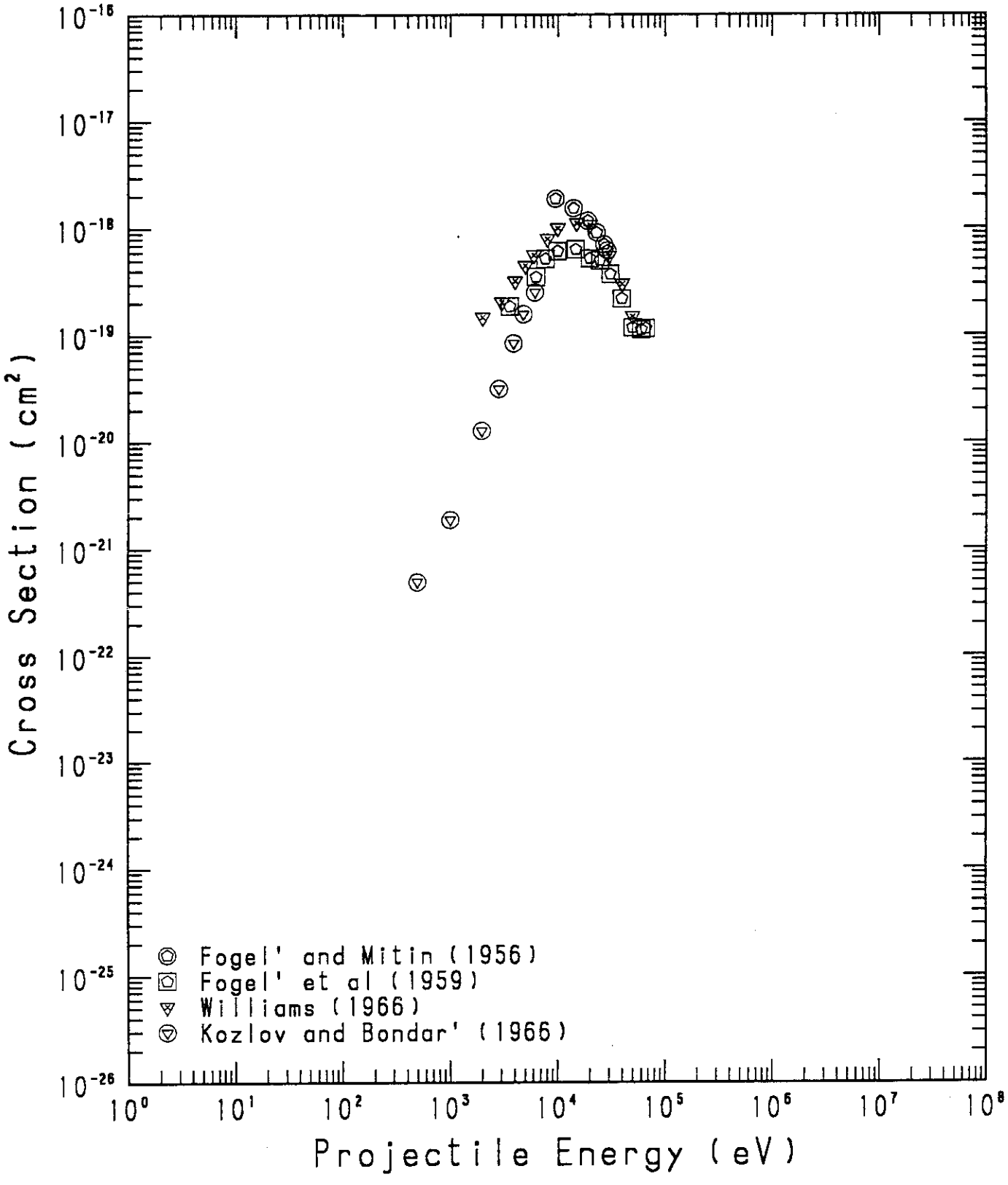

TABLE 12

PROCESS : H+ + NE = H- (1-1)

FOGEL' AND MITIN, SOV. PHYS. JETP 3 334 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.50E+03	1.35E+00	1.88E-18
1.40E+04	1.64E+00	1.53E-18
1.90E+04	1.91E+00	1.17E-18
2.30E+04	2.11E+00	9.10E-19
2.70E+04	2.28E+00	7.04E-19
2.90E+04	2.37E+00	6.16E-19

FOGEL' ET AL, SOV. PHYS. JETP 8 390 (1959)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.56E+03	8.29E-01	1.85E-19
6.26E+03	1.10E+00	3.50E-19
7.68E+03	1.22E+00	5.15E-19
9.95E+03	1.39E+00	6.11E-19
1.47E+04	1.68E+00	6.34E-19
1.99E+04	1.96E+00	5.19E-19
2.47E+04	2.18E+00	4.99E-19
3.09E+04	2.44E+00	3.70E-19
3.96E+04	2.76E+00	2.18E-19
4.99E+04	3.10E+00	1.17E-19
6.02E+04	3.41E+00	1.12E-19
6.63E+04	3.58E+00	1.15E-19

WILLIAMS, PHYS. REV. 150 7 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.46E-19
3.00E+03	7.61E-01	2.03E-19
4.00E+03	8.79E-01	3.20E-19
5.00E+03	9.82E-01	4.45E-19
6.00E+03	1.08E+00	5.59E-19
8.00E+03	1.24E+00	7.94E-19
1.00E+04	1.39E+00	9.98E-19
1.50E+04	1.70E+00	1.11E-18
2.00E+04	1.96E+00	1.07E-18
3.00E+04	2.41E+00	5.48E-19
4.00E+04	2.78E+00	3.00E-19
5.00E+04	3.11E+00	1.49E-19

TABLE 12 -CONTINUED

KOZLOV AND BONDAR', SOV. PHYS. JETP 23 195 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.96E+02	3.09E-01	4.91E-22
1.00E+03	4.39E-01	1.87E-21
1.96E+03	6.15E-01	1.27E-20
2.82E+03	7.38E-01	3.14E-20
3.86E+03	8.63E-01	8.37E-20
4.79E+03	9.61E-01	1.57E-19
6.13E+03	1.09E+00	2.51E-19

Fig.13 $H^+ + Ar \rightarrow H^- (\sigma_{1-1})$

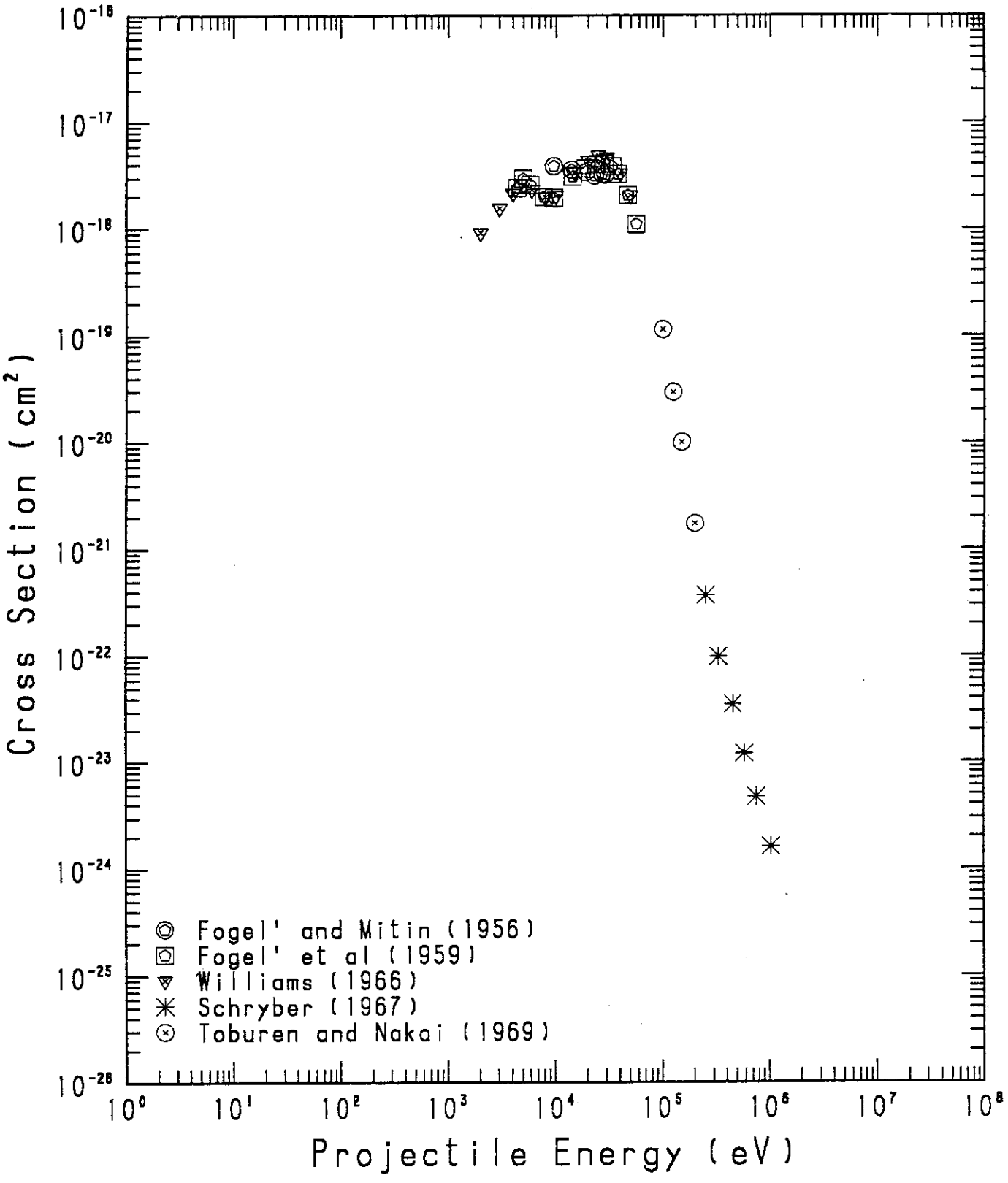

TABLE 13

PROCESS : H+ + AR = H- (1-1)

FOGEL' AND MITIN, SOV. PHYS. JETP 3 334 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.50E+03	1.35E+00	3.87E-18
1.40E+04	1.64E+00	3.58E-18
1.90E+04	1.91E+00	3.40E-18
2.30E+04	2.11E+00	3.14E-18
2.70E+04	2.28E+00	3.26E-18
2.90E+04	2.37E+00	3.23E-18

FOGEL' ET AL, SOV. PHYS. JETP 8 390 (1959)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.37E+03	9.18E-01	2.41E-18
4.98E+03	9.80E-01	2.96E-18
5.82E+03	1.06E+00	2.59E-18
7.73E+03	1.22E+00	1.99E-18
9.58E+03	1.36E+00	1.95E-18
1.44E+04	1.67E+00	3.08E-18
1.89E+04	1.91E+00	3.67E-18
2.39E+04	2.15E+00	3.99E-18
2.85E+04	2.35E+00	4.08E-18
3.35E+04	2.54E+00	3.85E-18
3.79E+04	2.70E+00	3.25E-18
4.72E+04	3.02E+00	2.06E-18
5.65E+04	3.30E+00	1.10E-18

WILLIAMS, PHYS. REV. 150 7 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	9.18E-19
3.00E+03	7.61E-01	1.55E-18
4.00E+03	8.79E-01	2.14E-18
5.00E+03	9.82E-01	2.61E-18
6.00E+03	1.08E+00	2.32E-18
8.00E+03	1.24E+00	1.97E-18
1.00E+04	1.39E+00	2.03E-18
1.50E+04	1.70E+00	3.42E-18
2.00E+04	1.96E+00	4.34E-18
2.50E+04	2.20E+00	4.87E-18
3.00E+04	2.41E+00	4.66E-18
4.00E+04	2.78E+00	3.28E-18
5.00E+04	3.11E+00	2.05E-18

TABLE 13 -CONTINUED

SCHRYBER, HELV. PHYS. ACTA 40 1023 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.53E+05	6.99E+00	3.70E-22
3.33E+05	8.02E+00	9.80E-23
4.55E+05	9.37E+00	3.50E-23
5.85E+05	1.06E+01	1.20E-23
7.49E+05	1.20E+01	4.70E-24
1.03E+06	1.41E+01	1.60E-24

TOBUREN AND NAKAI, PHYS. REV. 177 191 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	1.14E-19
1.25E+05	4.91E+00	2.95E-20
1.50E+05	5.38E+00	1.00E-20
2.00E+05	6.21E+00	1.73E-21

Fig.14 $H^+ + Kr \rightarrow H^- (\sigma_{1-1})$

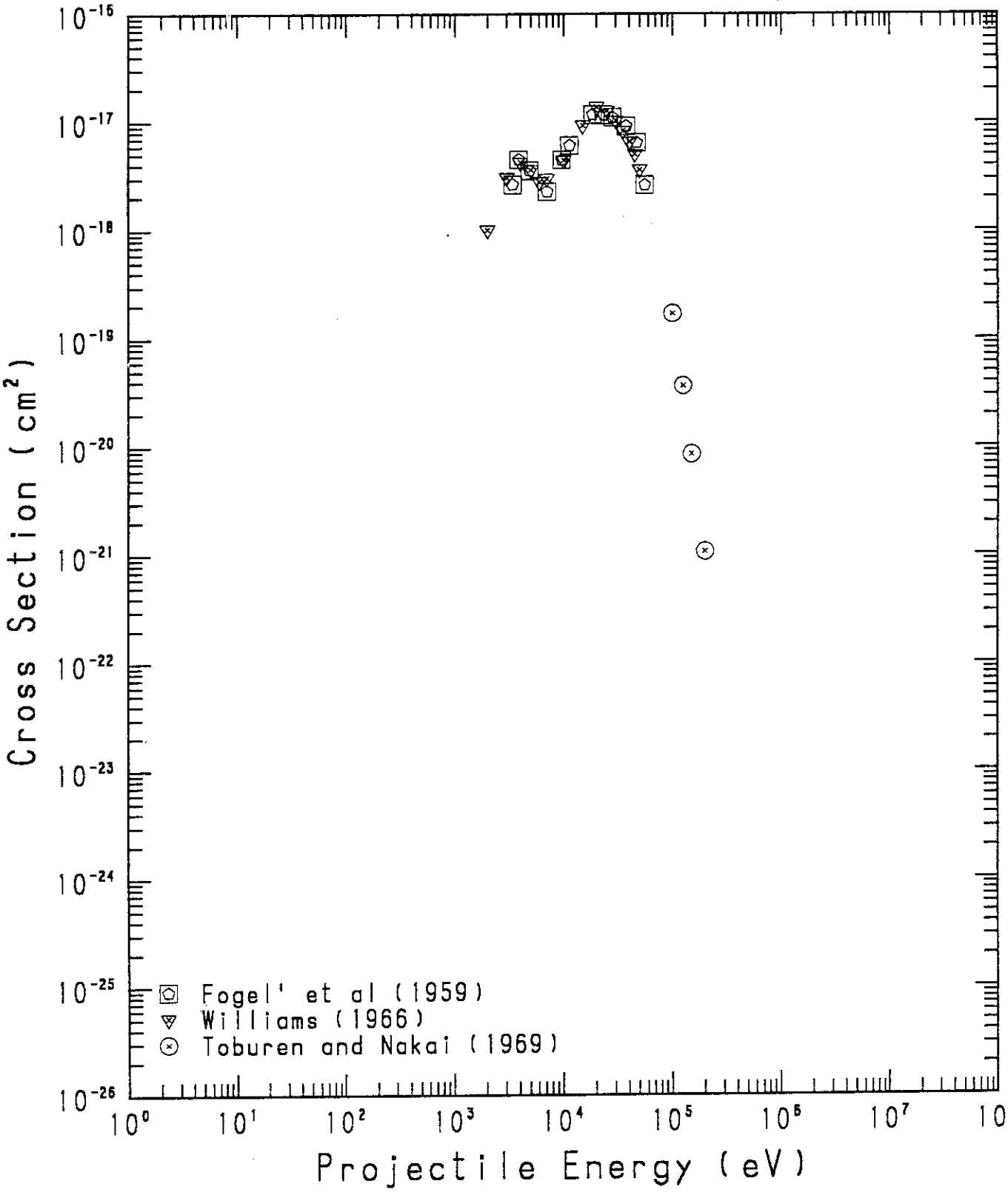

TABLE 14

PROCESS : H+ + KR = H- (1-1)

FOGEL' ET AL, SOV. PHYS. JETP 8 390 (1959)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.39E+03	8.09E-01	2.64E-18
3.85E+03	8.62E-01	4.51E-18
4.87E+03	9.69E-01	3.55E-18
7.06E+03	1.17E+00	2.27E-18
9.58E+03	1.36E+00	4.50E-18
1.13E+04	1.48E+00	6.10E-18
1.84E+04	1.88E+00	1.17E-17
2.33E+04	2.12E+00	1.16E-17
2.80E+04	2.32E+00	1.10E-17
3.74E+04	2.69E+00	9.14E-18
4.67E+04	3.00E+00	6.44E-18
5.58E+04	3.28E+00	2.61E-18

WILLIAMS, PHYS. REV. 150 7 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.01E-18
3.00E+03	7.61E-01	3.07E-18
4.00E+03	8.79E-01	4.24E-18
5.00E+03	9.82E-01	3.61E-18
6.00E+03	1.08E+00	2.80E-18
7.00E+03	1.16E+00	3.01E-18
1.00E+04	1.39E+00	4.45E-18
1.50E+04	1.70E+00	9.28E-18
2.00E+04	1.96E+00	1.37E-17
2.50E+04	2.20E+00	1.27E-17
3.00E+04	2.41E+00	1.03E-17
3.50E+04	2.60E+00	8.31E-18
4.00E+04	2.78E+00	6.58E-18
4.50E+04	2.95E+00	5.06E-18
5.00E+04	3.11E+00	3.61E-18

TOBUREN AND NAKAI, PHYS. REV. 177 191 (1969)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	1.69E-19
1.25E+05	4.91E+00	3.65E-20
1.50E+05	5.38E+00	8.53E-21
2.00E+05	6.21E+00	1.07E-21

Fig.15 $H^+ + Xe \rightarrow H^- (\sigma_{1-1})$

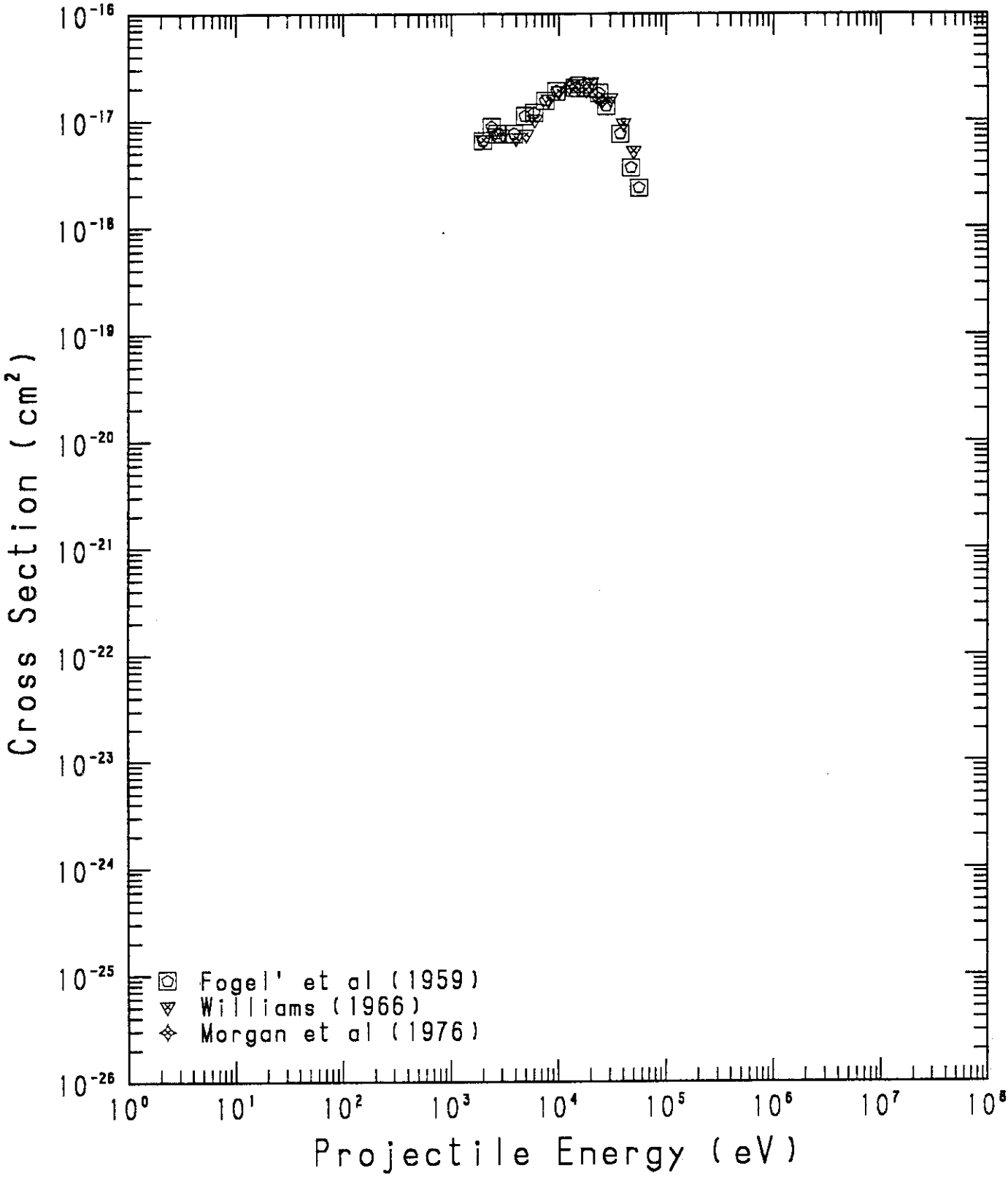

TABLE 15

PROCESS : H+ + XE = H- (1-1)

FOGEL' ET AL, SOV. PHYS. JETP 8 390 (1959)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.97E+03	6.17E-01	6.48E-18
2.37E+03	6.76E-01	8.76E-18
2.68E+03	7.19E-01	7.57E-18
3.81E+03	8.57E-01	7.57E-18
4.83E+03	9.65E-01	1.10E-17
5.90E+03	1.07E+00	1.18E-17
7.49E+03	1.20E+00	1.53E-17
9.47E+03	1.35E+00	1.87E-17
1.41E+04	1.65E+00	2.01E-17
1.88E+04	1.90E+00	2.00E-17
2.36E+04	2.13E+00	1.79E-17
2.77E+04	2.31E+00	1.36E-17
3.74E+04	2.69E+00	7.50E-18
4.71E+04	3.01E+00	3.61E-18
5.63E+04	3.30E+00	2.33E-18

WILLIAMS, PHYS. REV. 150 7 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	6.60E-18
2.50E+03	6.95E-01	7.70E-18
3.00E+03	7.61E-01	7.51E-18
4.00E+03	8.79E-01	6.87E-18
5.00E+03	9.82E-01	7.43E-18
6.00E+03	1.08E+00	1.03E-17
8.00E+03	1.24E+00	1.57E-17
1.00E+04	1.39E+00	1.88E-17
1.50E+04	1.70E+00	2.30E-17
2.00E+04	1.96E+00	2.25E-17
3.00E+04	2.41E+00	1.60E-17
4.00E+04	2.78E+00	9.44E-18
5.00E+04	3.11E+00	5.21E-18

MORGAN ET AL, PHYS. REV. A14 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.25E+04	1.55E+00	2.04E-17
1.53E+04	1.72E+00	1.97E-17
1.80E+04	1.86E+00	1.92E-17
2.20E+04	2.06E+00	1.71E-17
2.50E+04	2.20E+00	1.50E-17

Fig.16 H + He → H^+ (σ_{01})

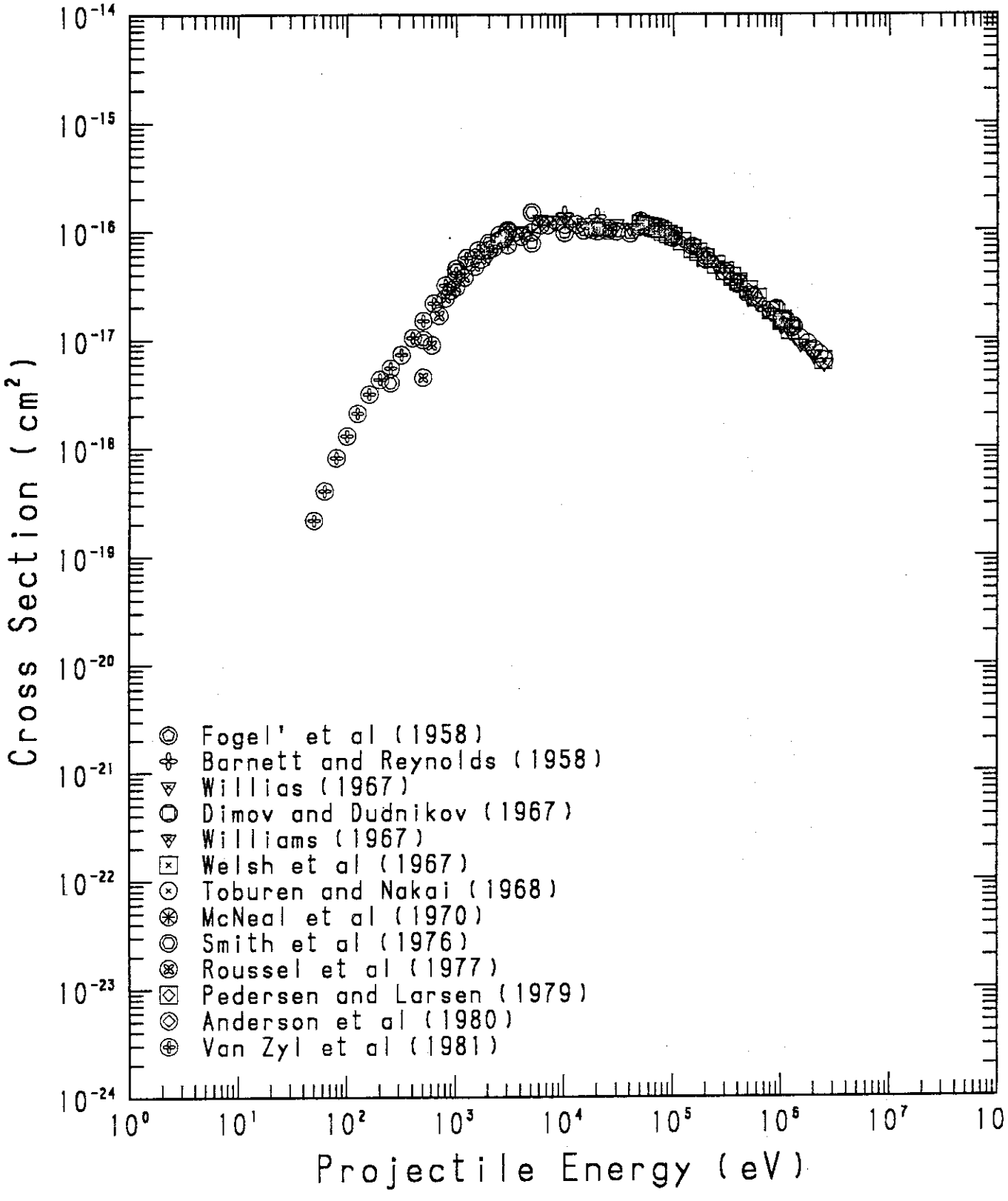

TABLE 16

PROCESS : H + HE = H+ (01)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	7.69E-17
1.00E+04	1.39E+00	9.60E-17
1.50E+04	1.70E+00	1.01E-16
2.00E+04	1.96E+00	9.88E-17
2.50E+04	2.20E+00	9.96E-17
3.00E+04	2.41E+00	9.86E-17
4.00E+04	2.78E+00	9.44E-17

BARNETT AND REYNOLDS, PHYS. REV. 109 355 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	1.41E-16
2.00E+04	1.96E+00	1.34E-16
5.00E+04	3.11E+00	1.20E-16
1.00E+05	4.39E+00	8.65E-17
1.50E+05	5.38E+00	7.15E-17
2.00E+05	6.21E+00	5.51E-17
2.50E+05	6.95E+00	4.71E-17
3.50E+05	8.22E+00	3.39E-17
4.25E+05	9.06E+00	2.80E-17
5.00E+05	9.82E+00	2.36E-17
7.00E+05	1.16E+01	1.85E-17
9.00E+05	1.32E+01	1.55E-17
1.00E+06	1.39E+01	1.32E-17

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	5.84E-17
3.00E+03	7.61E-01	8.23E-17
4.00E+03	8.79E-01	9.95E-17
6.00E+03	1.08E+00	1.27E-16
8.00E+03	1.24E+00	1.24E-16
1.00E+04	1.39E+00	1.32E-16
1.50E+04	1.70E+00	1.18E-16
1.80E+04	1.86E+00	1.07E-16
2.00E+04	1.96E+00	1.10E-16
2.50E+04	2.20E+00	1.04E-16
3.00E+04	2.41E+00	1.15E-16
4.00E+04	2.78E+00	1.06E-16

TABLE 16 -CONTINUED

4.50E+04	2.95E+00	1.00E-16
5.00E+04	3.11E+00	1.07E-16

DIMOV AND DUDNIKOV, SOV. PHYS. TP 11 919 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.00E+05	1.32E+01	1.90E-17
1.10E+06	1.46E+01	1.50E-17
1.30E+06	1.58E+01	1.30E-17

WILLIAS, PHYS. REV. 157 97 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.50E+05	6.95E+00	4.78E-17
3.00E+05	7.61E+00	4.32E-17
4.00E+05	8.79E+00	3.47E-17
5.00E+05	9.82E+00	2.76E-17
6.00E+05	1.08E+01	2.15E-17
8.00E+05	1.24E+01	1.71E-17
1.00E+06	1.39E+01	1.39E-17
1.20E+06	1.52E+01	1.15E-17
1.50E+06	1.70E+01	8.91E-18
1.80E+06	1.86E+01	8.29E-18
2.00E+06	1.96E+01	7.02E-18
2.50E+06	2.20E+01	5.90E-18

WELSH ET AL, PHYS. REV. 158 85 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.03E+06	1.41E+01	1.50E-17
2.44E+06	2.17E+01	6.30E-18

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	8.52E-17
2.00E+05	6.21E+00	5.38E-17
3.00E+05	7.61E+00	4.15E-17
4.00E+05	8.79E+00	3.27E-17
5.50E+05	1.03E+01	2.44E-17
8.00E+05	1.24E+01	1.82E-17

TABLE 16 -CONTINUED

1.00E+06	1.39E+01	1.52E-17
1.25E+06	1.55E+01	1.25E-17
1.50E+06	1.70E+01	9.99E-18
1.75E+06	1.84E+01	9.06E-18
2.00E+06	1.96E+01	7.94E-18
2.25E+06	2.08E+01	7.20E-18
2.50E+06	2.20E+01	6.31E-18

MCNEAL ET AL, PHYS. REV. A2 131 (1970)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.00E+03	7.61E-01	7.45E-17
4.00E+03	8.79E-01	8.87E-17
5.00E+03	9.82E-01	9.75E-17
6.00E+03	1.08E+00	1.13E-16
7.00E+03	1.16E+00	1.14E-16
1.00E+04	1.39E+00	1.15E-16
1.30E+04	1.58E+00	1.15E-16
1.80E+04	1.86E+00	1.02E-16
2.00E+04	1.96E+00	1.10E-16
2.50E+04	2.20E+00	1.05E-16

SMITH ET AL, J. GEOPHYS. RES. 81 2231 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.50E+02	2.20E-01	4.00E-18
5.00E+02	3.11E-01	1.00E-17
1.00E+03	4.39E-01	4.50E-17
2.00E+03	6.21E-01	7.80E-17
3.00E+03	7.61E-01	9.90E-17
5.00E+03	9.82E-01	1.48E-16

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	4.49E-18
6.00E+02	3.40E-01	8.91E-18
7.00E+02	3.68E-01	1.67E-17
8.00E+02	3.93E-01	2.42E-17
9.00E+02	4.17E-01	2.85E-17
1.00E+03	4.39E-01	3.04E-17
1.20E+03	4.81E-01	3.75E-17
1.50E+03	5.38E-01	4.72E-17
1.70E+03	5.73E-01	5.50E-17

TABLE 16 -CONTINUED

2.00E+03	6.21E-01	6.70E-17
2.20E+03	6.52E-01	6.94E-17
2.50E+03	6.95E-01	8.27E-17
2.70E+03	7.22E-01	8.65E-17
3.00E+03	7.61E-01	9.77E-17

PEDERSEN AND LARSEN, J. PHYS. B12 4099 (1979)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.15E-16
5.50E+04	3.26E+00	1.12E-16
6.00E+04	3.40E+00	1.10E-16
6.50E+04	3.54E+00	1.07E-16
7.00E+04	3.68E+00	1.05E-16
7.50E+04	3.80E+00	1.03E-16
8.00E+04	3.93E+00	9.83E-17
9.00E+04	4.17E+00	9.29E-17
1.00E+05	4.39E+00	8.80E-17
1.20E+05	4.81E+00	7.92E-17
1.50E+05	5.38E+00	6.78E-17
1.70E+05	5.73E+00	6.31E-17
2.00E+05	6.21E+00	5.57E-17
2.50E+05	6.95E+00	4.82E-17
3.00E+05	7.61E+00	4.20E-17
3.50E+05	8.22E+00	3.74E-17
4.00E+05	8.79E+00	3.35E-17
5.00E+05	9.82E+00	2.84E-17
6.00E+05	1.08E+01	2.40E-17
8.00E+05	1.24E+01	1.82E-17
1.00E+06	1.39E+01	1.46E-17
1.20E+06	1.52E+01	1.20E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.23E-16
7.50E+04	3.80E+00	1.08E-16
1.00E+05	4.39E+00	9.20E-17
1.50E+05	5.38E+00	7.20E-17
2.00E+05	6.21E+00	5.80E-17

TABLE 16 -CONTINUED

VAN ZYL ET AL, J. CHEM. PHYS. 74 314 (1981)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+01	9.82E-02	2.16E-19
6.25E+01	1.10E-01	4.04E-19
8.00E+01	1.24E-01	8.15E-19
1.00E+02	1.39E-01	1.29E-18
1.25E+02	1.55E-01	2.09E-18
1.60E+02	1.76E-01	3.15E-18
2.00E+02	1.96E-01	4.31E-18
2.50E+02	2.20E-01	5.47E-18
3.15E+02	2.47E-01	7.28E-18
4.00E+02	2.78E-01	1.04E-17
5.00E+02	3.11E-01	1.49E-17
6.25E+02	3.47E-01	2.16E-17
8.00E+02	3.93E-01	3.17E-17
1.00E+03	4.39E-01	4.14E-17
1.25E+03	4.91E-01	5.67E-17
1.60E+03	5.56E-01	6.65E-17
2.50E+03	6.95E-01	9.23E-17
3.00E+03	7.61E-01	1.02E-16

Fig.17 H + Ne → H^+ (σ_{01})

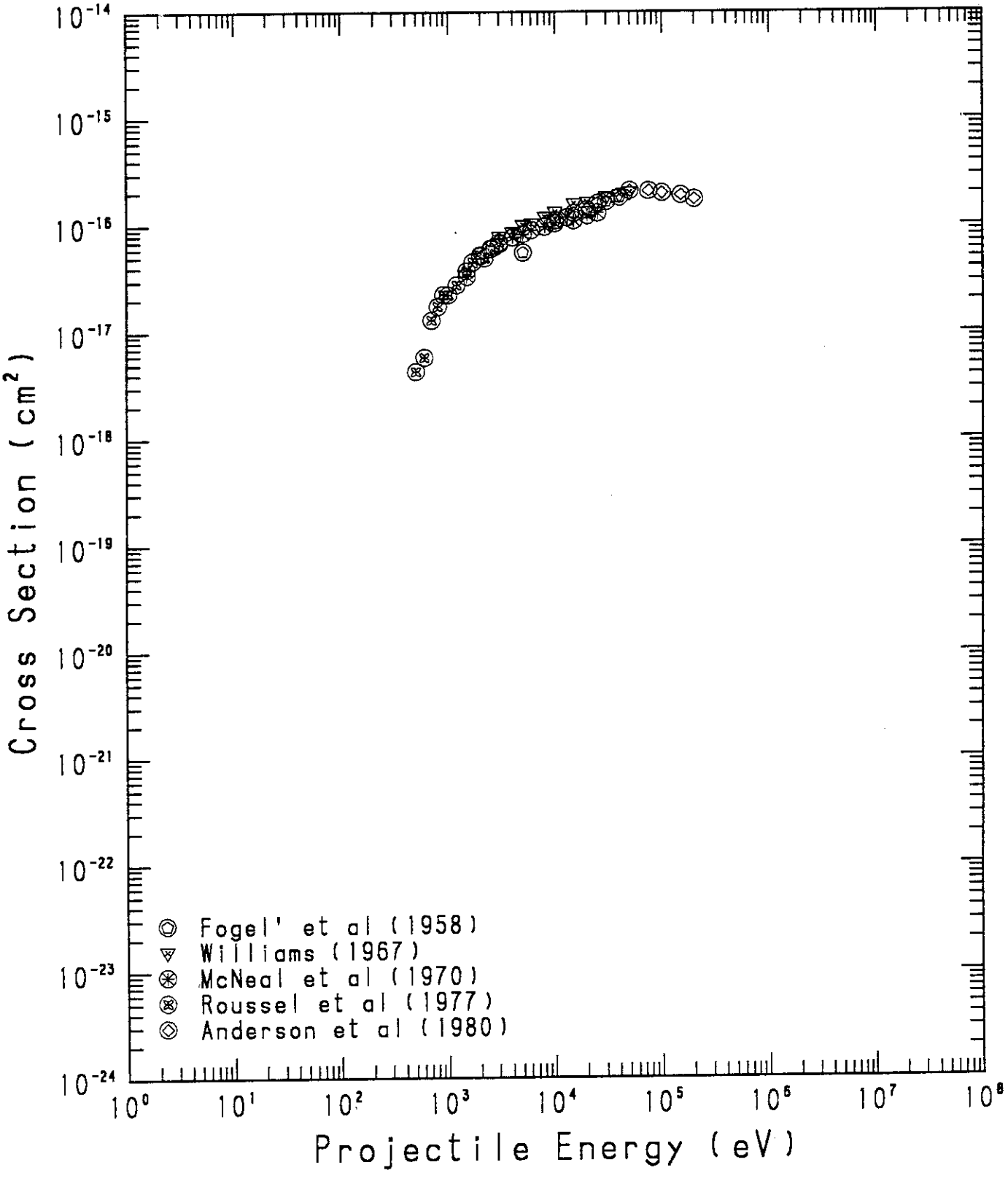

TABLE 17

PROCESS : H + NE = H+ (01)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	5.50E-17
1.00E+04	1.39E+00	1.10E-16
1.50E+04	1.70E+00	1.28E-16
2.00E+04	1.96E+00	1.38E-16
2.50E+04	2.20E+00	1.58E-16
3.00E+04	2.41E+00	1.64E-16
4.00E+04	2.78E+00	1.80E-16

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	5.02E-17
3.00E+03	7.61E-01	7.82E-17
4.00E+03	8.79E-01	8.65E-17
5.00E+03	9.82E-01	1.00E-16
6.00E+03	1.08E+00	1.03E-16
8.00E+03	1.24E+00	1.19E-16
1.00E+04	1.39E+00	1.32E-16
1.50E+04	1.70E+00	1.58E-16
2.00E+04	1.96E+00	1.63E-16
3.00E+04	2.41E+00	1.83E-16
4.00E+04	2.78E+00	1.90E-16
5.00E+04	3.11E+00	2.01E-16

MCNEAL ET AL, PHYS. REV. A2 131 (1970)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.50E+03	5.38E-01	3.30E-17
2.00E+03	6.21E-01	5.12E-17
2.50E+03	6.95E-01	6.03E-17
3.00E+03	7.61E-01	6.62E-17
4.00E+03	8.79E-01	7.65E-17
5.00E+03	9.82E-01	8.20E-17
6.00E+03	1.08E+00	8.92E-17
8.00E+03	1.24E+00	9.59E-17
1.00E+04	1.39E+00	1.04E-16
1.30E+04	1.58E+00	1.17E-16
1.50E+04	1.70E+00	1.10E-16
2.00E+04	1.96E+00	1.22E-16
2.50E+04	2.20E+00	1.29E-16

TABLE 17 -CONTINUED

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	4.28E-18
6.00E+02	3.40E-01	5.80E-18
7.00E+02	3.68E-01	1.29E-17
8.00E+02	3.93E-01	1.73E-17
9.00E+02	4.17E-01	2.24E-17
1.00E+03	4.39E-01	2.22E-17
1.20E+03	4.81E-01	2.75E-17
1.50E+03	5.38E-01	3.73E-17
1.70E+03	5.73E-01	4.48E-17
2.00E+03	6.21E-01	5.22E-17
2.20E+03	6.52E-01	4.89E-17
2.50E+03	6.95E-01	5.94E-17
2.70E+03	7.22E-01	6.21E-17
3.00E+03	7.61E-01	6.84E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	2.08E-16
7.50E+04	3.80E+00	2.07E-16
1.00E+05	4.39E+00	1.98E-16
1.50E+05	5.38E+00	1.89E-16
2.00E+05	6.21E+00	1.73E-16

Fig.18 H + Ar → H^+ (σ_{01})

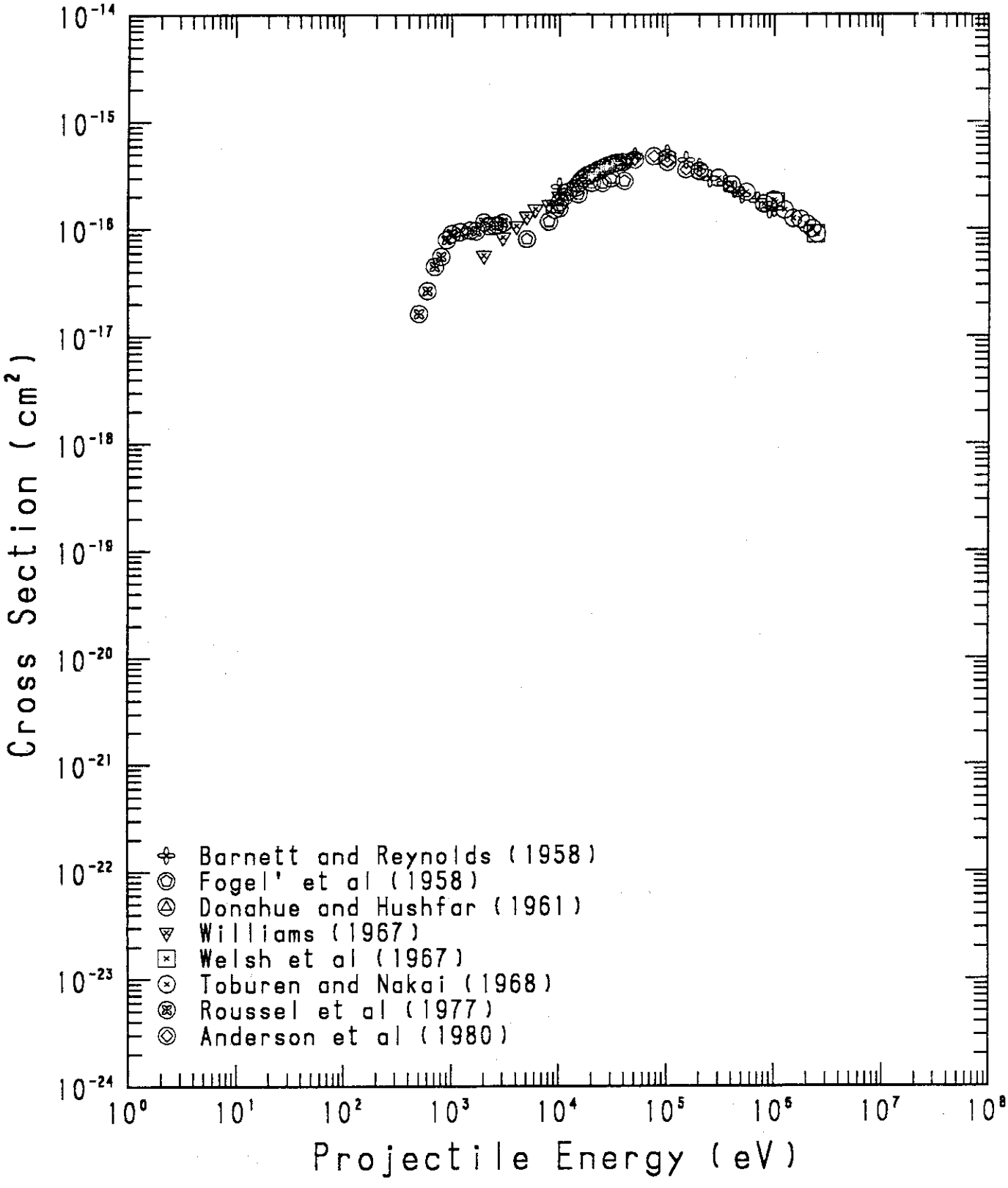

TABLE 18

PROCESS : H + AR = H+ (01)

BARNETT AND REYNOLDS, PHYS. REV. 109 355 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	2.47E-16
2.00E+04	1.96E+00	3.31E-16
5.00E+04	3.11E+00	4.72E-16
1.00E+05	4.39E+00	5.03E-16
1.50E+05	5.38E+00	4.38E-16
2.00E+05	6.21E+00	3.73E-16
2.50E+05	6.95E+00	2.93E-16
3.50E+05	8.22E+00	2.63E-16
4.25E+05	9.06E+00	2.32E-16
5.00E+05	9.82E+00	2.06E-16
7.00E+05	1.16E+01	1.81E-16
9.00E+05	1.32E+01	1.49E-16
1.00E+06	1.39E+01	1.54E-16

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	8.04E-17
8.00E+03	1.24E+00	1.17E-16
1.00E+04	1.39E+00	1.55E-16
1.50E+04	1.70E+00	2.09E-16
2.00E+04	1.96E+00	2.67E-16
2.50E+04	2.20E+00	2.66E-16
3.00E+04	2.41E+00	2.94E-16
4.00E+04	2.78E+00	2.79E-16

DONAHUE AND HUSHFAR, PHYS. REV. 124 138 (1961)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.00E+03	1.32E+00	1.50E-16
1.00E+04	1.39E+00	1.76E-16
1.10E+04	1.46E+00	1.98E-16
1.20E+04	1.52E+00	2.21E-16
1.40E+04	1.64E+00	2.40E-16
1.50E+04	1.70E+00	2.62E-16
1.60E+04	1.76E+00	2.85E-16
1.70E+04	1.81E+00	2.99E-16
1.80E+04	1.86E+00	3.15E-16
2.00E+04	1.96E+00	3.30E-16
2.20E+04	2.06E+00	3.41E-16

TABLE 18 -CONTINUED

2.30E+04	2.11E+00	3.57E-16
2.50E+04	2.20E+00	3.69E-16
2.60E+04	2.24E+00	3.75E-16
2.80E+04	2.32E+00	3.91E-16
3.00E+04	2.41E+00	3.98E-16
3.20E+04	2.48E+00	4.09E-16
3.40E+04	2.56E+00	4.13E-16
3.50E+04	2.60E+00	4.16E-16
3.80E+04	2.71E+00	4.21E-16
3.90E+04	2.74E+00	4.18E-16

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	5.65E-17
3.00E+03	7.61E-01	8.36E-17
4.00E+03	8.79E-01	1.06E-16
5.00E+03	9.82E-01	1.30E-16
6.00E+03	1.08E+00	1.52E-16
8.00E+03	1.24E+00	1.68E-16
1.00E+04	1.39E+00	2.00E-16
1.50E+04	1.70E+00	2.58E-16
2.00E+04	1.96E+00	3.10E-16
2.50E+04	2.20E+00	3.69E-16
3.00E+04	2.41E+00	3.86E-16
4.00E+04	2.78E+00	4.12E-16
5.00E+04	3.11E+00	4.64E-16

WELSH ET AL, PHYS. REV. 158 85 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.03E+06	1.41E+01	1.76E-16
2.44E+06	2.17E+01	8.90E-17

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	4.59E-16
2.00E+05	6.21E+00	3.47E-16
3.00E+05	7.61E+00	2.97E-16
4.00E+05	8.79E+00	2.57E-16
5.50E+05	1.03E+01	2.19E-16
8.00E+05	1.24E+01	1.70E-16
1.00E+06	1.39E+01	1.84E-16

TABLE 18 -CONTINUED

1.25E+06	1.55E+01	1.49E-16
1.50E+06	1.70E+01	1.24E-16
1.75E+06	1.84E+01	1.22E-16
2.00E+06	1.96E+01	1.10E-16
2.25E+06	2.08E+01	9.98E-17
2.50E+06	2.20E+01	8.93E-17

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	1.62E-17
6.00E+02	3.40E-01	2.65E-17
7.00E+02	3.68E-01	4.46E-17
8.00E+02	3.93E-01	5.52E-17
9.00E+02	4.17E-01	7.91E-17
1.00E+03	4.39E-01	8.99E-17
1.20E+03	4.81E-01	9.37E-17
1.50E+03	5.38E-01	9.67E-17
1.70E+03	5.73E-01	9.56E-17
2.00E+03	6.21E-01	1.15E-16
2.20E+03	6.52E-01	1.07E-16
2.50E+03	6.95E-01	1.07E-16
2.70E+03	7.22E-01	1.08E-16
3.00E+03	7.61E-01	1.14E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	4.42E-16
7.50E+04	3.80E+00	4.76E-16
1.00E+05	4.39E+00	4.20E-16
1.50E+05	5.38E+00	3.57E-16
2.00E+05	6.21E+00	3.43E-16

Fig.19 H + Kr → H^+ (σ_{01})

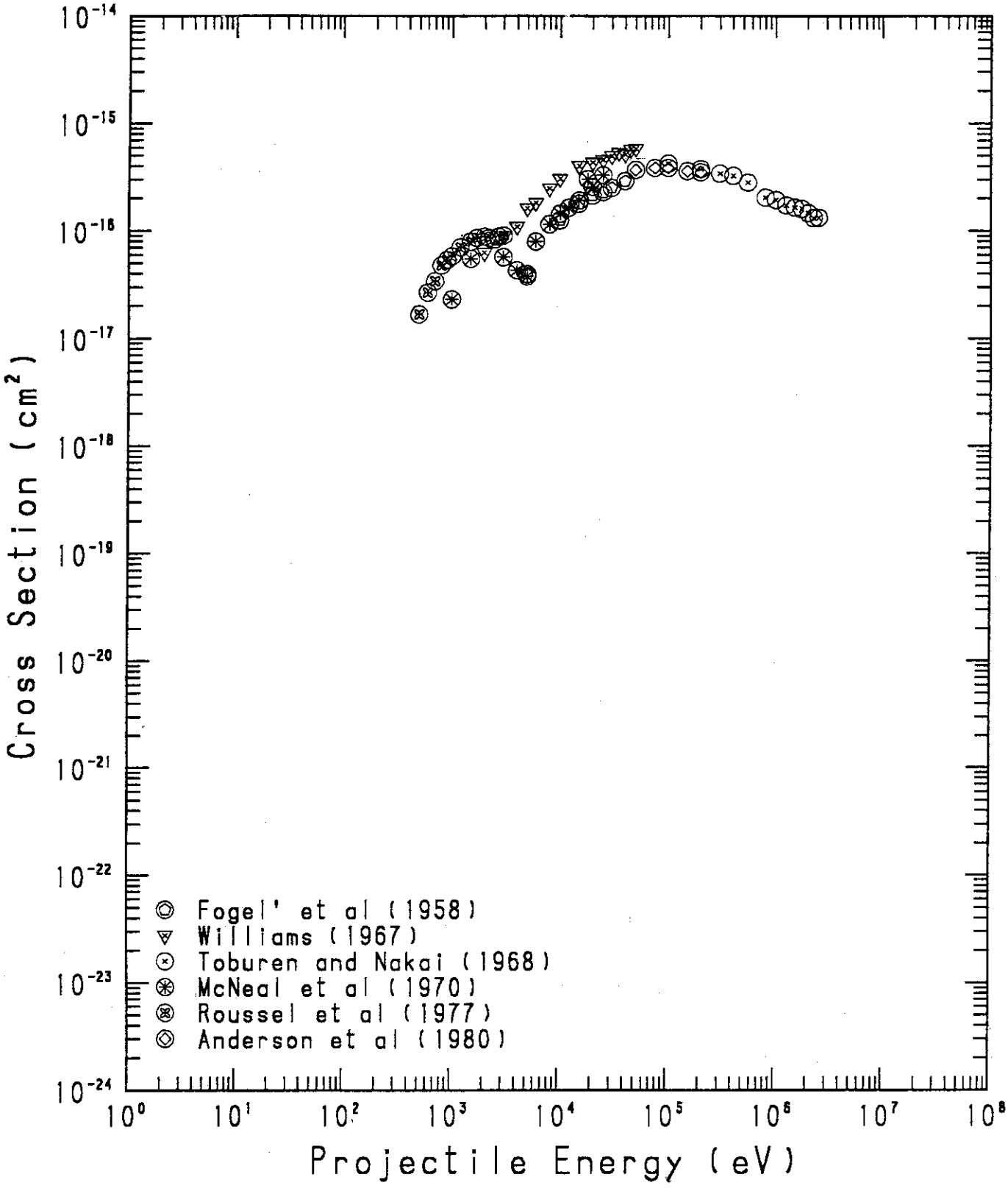

TABLE 19

PROCESS : H + KR = H+ (01)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.97E-17
1.00E+04	1.39E+00	1.25E-16
1.50E+04	1.70E+00	1.78E-16
2.00E+04	1.96E+00	2.12E-16
2.50E+04	2.20E+00	2.28E-16
3.00E+04	2.41E+00	2.50E-16
4.00E+04	2.78E+00	2.90E-16

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	6.24E-17
3.00E+03	7.61E-01	8.93E-17
4.00E+03	8.79E-01	1.09E-16
5.00E+03	9.82E-01	1.61E-16
6.00E+03	1.08E+00	1.81E-16
8.00E+03	1.24E+00	2.47E-16
1.00E+04	1.39E+00	3.04E-16
1.50E+04	1.70E+00	4.01E-16
2.00E+04	1.96E+00	4.31E-16
2.50E+04	2.20E+00	4.59E-16
3.00E+04	2.41E+00	4.97E-16
3.50E+04	2.60E+00	5.34E-16
4.00E+04	2.78E+00	5.15E-16
4.50E+04	2.95E+00	5.74E-16
5.00E+04	3.11E+00	5.84E-16

TOBUREN AND NAKAI, PHYS. REV. 171 114 (1968)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+05	4.39E+00	4.22E-16
2.00E+05	6.21E+00	3.75E-16
3.00E+05	7.61E+00	3.41E-16
4.00E+05	8.79E+00	3.25E-16
5.50E+05	1.03E+01	2.80E-16
8.00E+05	1.24E+01	2.03E-16
1.00E+06	1.39E+01	1.93E-16
1.25E+06	1.55E+01	1.72E-16
1.50E+06	1.70E+01	1.64E-16
1.75E+06	1.84E+01	1.60E-16

TABLE 19 -CONTINUED

2.00E+06	1.96E+01	1.46E-16
2.25E+06	2.08E+01	1.31E-16
2.50E+06	2.20E+01	1.32E-16

MCNEAL ET AL, PHYS. REV. A2 131 (1970)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+03	4.39E-01	2.30E-17
1.50E+03	5.38E-01	5.48E-17
3.00E+03	7.61E-01	5.69E-17
4.00E+03	8.79E-01	4.29E-17
5.00E+03	9.82E-01	3.77E-17
6.00E+03	1.08E+00	7.94E-17
8.00E+03	1.24E+00	1.15E-16
1.00E+04	1.39E+00	1.44E-16
1.20E+04	1.52E+00	1.63E-16
1.50E+04	1.70E+00	1.90E-16
1.80E+04	1.86E+00	3.01E-16
2.00E+04	1.96E+00	2.56E-16
2.50E+04	2.20E+00	3.29E-16

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	1.67E-17
6.00E+02	3.40E-01	2.66E-17
7.00E+02	3.68E-01	3.40E-17
8.00E+02	3.93E-01	4.75E-17
9.00E+02	4.17E-01	5.35E-17
1.00E+03	4.39E-01	5.77E-17
1.20E+03	4.81E-01	7.00E-17
1.50E+03	5.38E-01	7.95E-17
1.70E+03	5.73E-01	8.57E-17
2.00E+03	6.21E-01	8.85E-17
2.20E+03	6.52E-01	8.56E-17
2.50E+03	6.95E-01	8.28E-17
2.70E+03	7.22E-01	8.82E-17
3.00E+03	7.61E-01	9.01E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	3.68E-16
7.50E+04	3.80E+00	3.85E-16

TABLE 19 -CONTINUED

1.00E+05	4.39E+00	3.85E-16
1.50E+05	5.38E+00	3.60E-16
2.00E+05	6.21E+00	3.50E-16

Fig.20 H + Xe → H^+ (σ_{01})

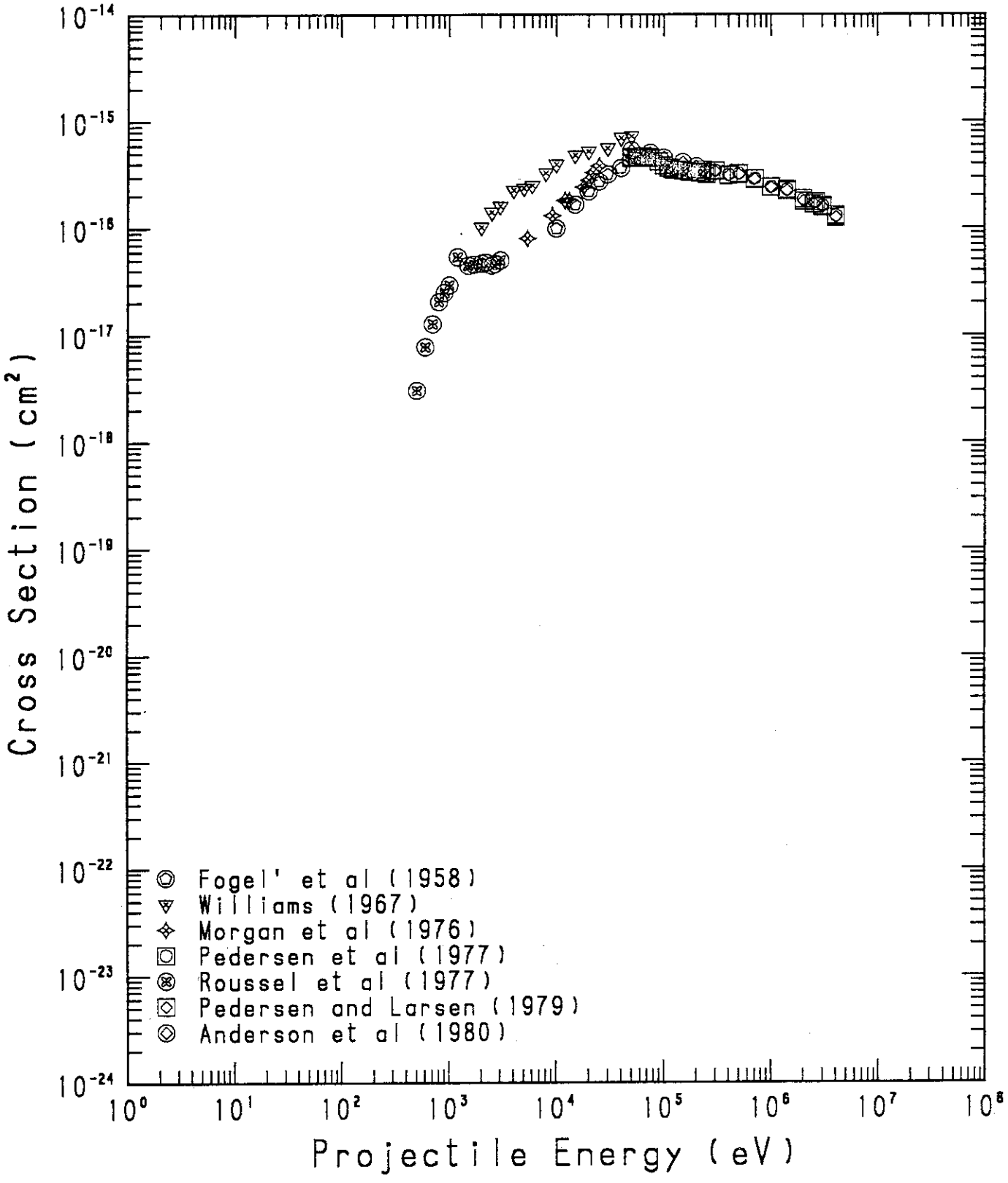

TABLE 20

PROCESS : H + XE = H+ (01)

FOGEL' ET AL, SOV. PHYS. JETP 7 400 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	9.89E-17
1.50E+04	1.70E+00	1.65E-16
2.00E+04	1.96E+00	2.19E-16
2.50E+04	2.20E+00	2.71E-16
3.00E+04	2.41E+00	3.15E-16
4.00E+04	2.78E+00	3.63E-16

WILLIAMS, PHYS. REV. 153 116 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.02E-16
2.50E+03	6.95E-01	1.40E-16
3.00E+03	7.61E-01	1.60E-16
4.00E+03	8.79E-01	2.25E-16
5.00E+03	9.82E-01	2.36E-16
6.00E+03	1.08E+00	2.50E-16
8.00E+03	1.24E+00	3.27E-16
1.00E+04	1.39E+00	3.93E-16
1.50E+04	1.70E+00	4.79E-16
2.00E+04	1.96E+00	5.22E-16
3.00E+04	2.41E+00	5.59E-16
4.00E+04	2.78E+00	6.99E-16
5.00E+04	3.11E+00	7.20E-16

MORGAN ET AL, PHYS. REV. A14 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.40E+03	1.02E+00	8.00E-17
9.20E+03	1.33E+00	1.30E-16
1.20E+04	1.52E+00	1.80E-16
1.32E+04	1.60E+00	1.80E-16
1.80E+04	1.86E+00	2.40E-16
2.00E+04	1.96E+00	2.80E-16
2.20E+04	2.06E+00	3.30E-16
2.50E+04	2.20E+00	3.80E-16

TABLE 20 -CONTINUED

PEDERSEN ET AL, J. PHYS. B10 L669 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	4.50E-16
5.60E+04	3.29E+00	4.48E-16
6.40E+04	3.51E+00	4.67E-16
7.30E+04	3.75E+00	4.57E-16
9.00E+04	4.17E+00	4.20E-16
1.00E+05	4.39E+00	3.83E-16
1.10E+05	4.61E+00	3.67E-16
1.20E+05	4.81E+00	3.53E-16
1.50E+05	5.38E+00	3.46E-16
1.70E+05	5.73E+00	3.35E-16
2.00E+05	6.21E+00	3.29E-16
2.20E+05	6.52E+00	3.26E-16
2.30E+05	6.66E+00	3.49E-16
2.40E+05	6.81E+00	3.26E-16
3.00E+05	7.61E+00	3.44E-16
4.00E+05	8.79E+00	3.14E-16
5.00E+05	9.82E+00	3.22E-16
7.00E+05	1.16E+01	2.87E-16
1.00E+06	1.39E+01	2.41E-16
1.40E+06	1.64E+01	2.27E-16
2.00E+06	1.96E+01	1.85E-16
2.60E+06	2.24E+01	1.74E-16
3.00E+06	2.41E+01	1.60E-16
4.00E+06	2.78E+01	1.30E-16

ROUSSEL ET AL, PHYS. REV. A16 1854 (1977)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+02	3.11E-01	3.04E-18
6.00E+02	3.40E-01	7.77E-18
7.00E+02	3.68E-01	1.27E-17
8.00E+02	3.93E-01	2.05E-17
9.00E+02	4.17E-01	2.49E-17
1.00E+03	4.39E-01	2.93E-17
1.20E+03	4.81E-01	5.37E-17
1.50E+03	5.38E-01	4.47E-17
1.70E+03	5.73E-01	4.57E-17
2.00E+03	6.21E-01	4.68E-17
2.20E+03	6.52E-01	4.78E-17
2.50E+03	6.95E-01	4.49E-17
2.70E+03	7.22E-01	4.64E-17
3.00E+03	7.61E-01	5.01E-17

TABLE 20 -CONTINUED

PEDERSEN AND LARSEN, J. PHYS. B12 4099 (1979)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	4.62E-16
5.75E+04	3.33E+00	4.48E-16
6.50E+04	3.54E+00	4.65E-16
7.50E+04	3.80E+00	4.48E-16
9.00E+04	4.17E+00	4.16E-16
1.00E+05	4.39E+00	3.83E-16
1.12E+05	4.66E+00	3.62E-16
1.25E+05	4.91E+00	3.48E-16
1.50E+05	5.38E+00	3.43E-16
1.75E+05	5.81E+00	3.33E-16
2.00E+05	6.21E+00	3.29E-16
2.25E+05	6.59E+00	3.34E-16
2.50E+05	6.95E+00	3.17E-16
3.00E+05	7.61E+00	3.39E-16
4.00E+05	8.79E+00	3.08E-16
5.00E+05	9.82E+00	3.17E-16
7.00E+05	1.16E+01	2.85E-16
1.00E+06	1.39E+01	2.38E-16
1.40E+06	1.64E+01	2.22E-16
2.00E+06	1.96E+01	1.77E-16
2.50E+06	2.20E+01	1.66E-16
3.00E+06	2.41E+01	1.56E-16
4.00E+06	2.78E+01	1.25E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	5.35E-16
7.50E+04	3.80E+00	5.05E-16
1.00E+05	4.39E+00	4.55E-16
1.50E+05	5.38E+00	4.11E-16
2.00E+05	6.21E+00	3.76E-16

Fig.21 $H^- + He \rightarrow H \quad (\sigma_{-10})$

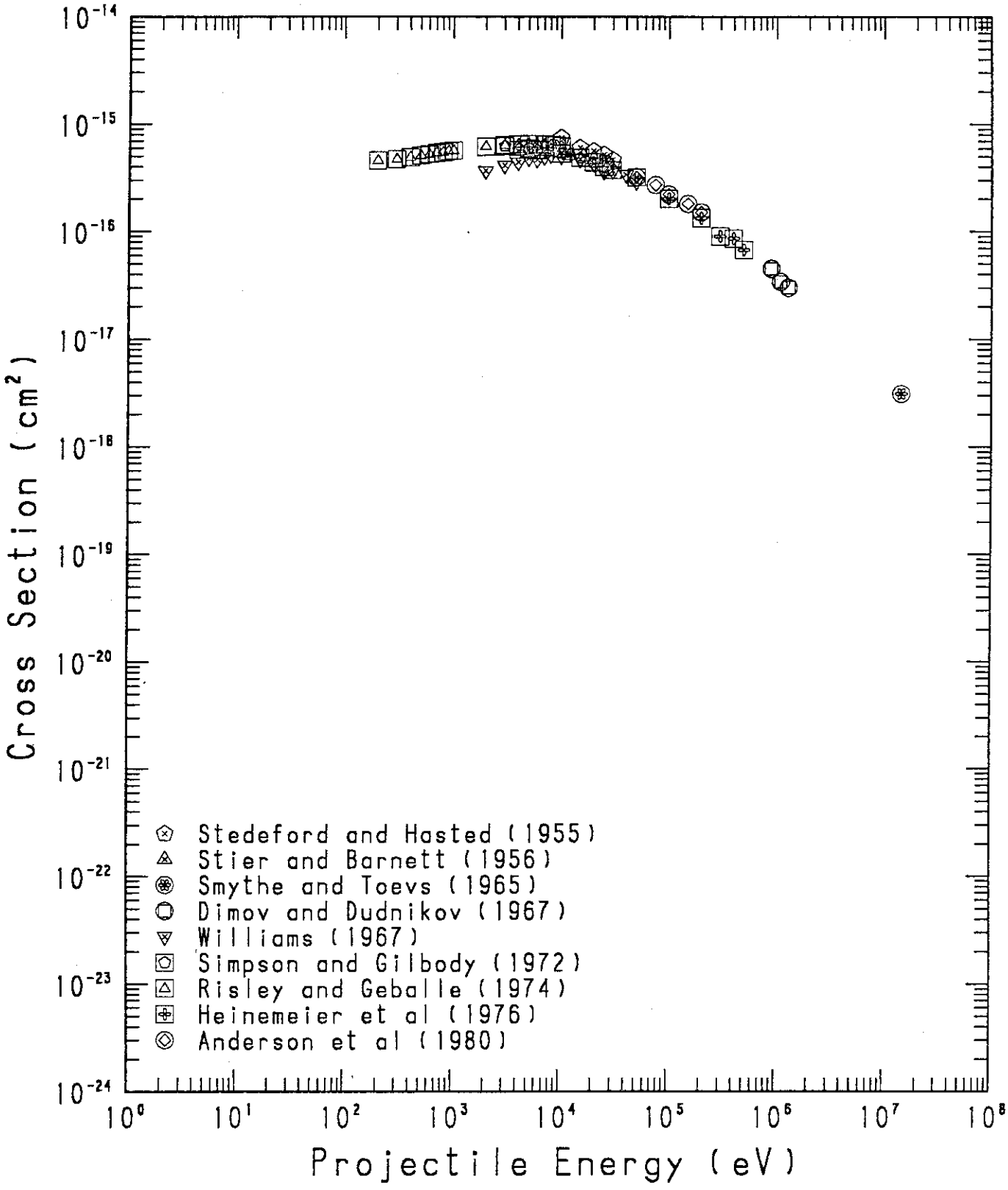

TABLE 21

PROCESS : H- + HE = H (-10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	5.62E-16
1.00E+04	1.39E+00	7.46E-16
1.50E+04	1.70E+00	6.03E-16
2.00E+04	1.96E+00	5.66E-16
2.50E+04	2.20E+00	5.20E-16
3.00E+04	2.41E+00	4.66E-16

STIER AND BARNETT, PHYS. REV. 103 896 (1956)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+03	8.79E-01	5.67E-16
6.00E+03	1.08E+00	5.58E-16
8.00E+03	1.24E+00	5.59E-16
1.00E+04	1.39E+00	5.46E-16
1.20E+04	1.52E+00	5.15E-16
1.60E+04	1.76E+00	4.99E-16
2.00E+04	1.96E+00	4.71E-16
2.40E+04	2.15E+00	4.44E-16
2.80E+04	2.32E+00	4.23E-16

SMYTHE AND TOEVS, PHYS. REV. 139 A15 (1965)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.46E+07	5.31E+01	3.09E-18

DIMOV AND DUDNIKOV, SOV. PHYS. TP 11 919 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.00E+05	1.32E+01	4.50E-17
1.10E+06	1.46E+01	3.40E-17
1.30E+06	1.58E+01	3.00E-17

TABLE 21 -CONTINUED

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	3.66E-16
3.00E+03	7.61E-01	4.12E-16
4.00E+03	8.79E-01	4.41E-16
5.00E+03	9.82E-01	4.80E-16
6.00E+03	1.08E+00	4.68E-16
7.00E+03	1.16E+00	4.97E-16
8.00E+03	1.24E+00	5.17E-16
1.00E+04	1.39E+00	5.02E-16
1.50E+04	1.70E+00	4.73E-16
2.00E+04	1.96E+00	4.29E-16
2.50E+04	2.20E+00	3.62E-16
3.00E+04	2.41E+00	3.66E-16
4.00E+04	2.78E+00	3.38E-16
5.00E+04	3.11E+00	2.89E-16

SIMPSON AND GILBODY, J. PHYS. B5 1959 (1972)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.00E+03	7.61E-01	6.23E-16
4.00E+03	8.79E-01	5.77E-16
5.00E+03	9.82E-01	5.94E-16
6.00E+03	1.08E+00	5.76E-16
1.00E+04	1.39E+00	5.33E-16
1.50E+04	1.70E+00	4.87E-16
2.00E+04	1.96E+00	4.40E-16
2.50E+04	2.20E+00	4.01E-16
3.00E+04	2.41E+00	3.72E-16

RISLEY AND GEBALLE, PHYS. REV. A9 2485 (1974)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+02	1.96E-01	4.58E-16
3.00E+02	2.41E-01	4.71E-16
4.00E+02	2.78E-01	4.92E-16
5.00E+02	3.11E-01	5.09E-16
6.00E+02	3.40E-01	5.23E-16
7.00E+02	3.68E-01	5.38E-16
8.00E+02	3.93E-01	5.47E-16
9.00E+02	4.17E-01	5.59E-16
1.00E+03	4.39E-01	5.68E-16
2.00E+03	6.21E-01	6.17E-16
3.00E+03	7.61E-01	6.38E-16
4.00E+03	8.79E-01	6.49E-16

TABLE 21 -CONTINUED

5.00E+03	9.82E-01	6.53E-16
6.00E+03	1.08E+00	6.53E-16
7.00E+03	1.16E+00	6.45E-16
8.00E+03	1.24E+00	6.42E-16
9.00E+03	1.32E+00	6.35E-16
1.00E+04	1.39E+00	6.24E-16

HEINEMEIER ET AL, J. PHYS. B9 2669 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	3.18E-16
1.00E+05	4.39E+00	2.01E-16
2.00E+05	6.21E+00	1.33E-16
3.00E+05	7.61E+00	9.00E-17
4.00E+05	8.79E+00	8.60E-17
5.00E+05	9.82E+00	6.73E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	3.20E-16
7.50E+04	3.80E+00	2.70E-16
1.00E+05	4.39E+00	2.20E-16
1.50E+05	5.38E+00	1.80E-16
2.00E+05	6.21E+00	1.50E-16

Fig.22 $H^- + Ne \rightarrow H \quad (\sigma_{-10})$

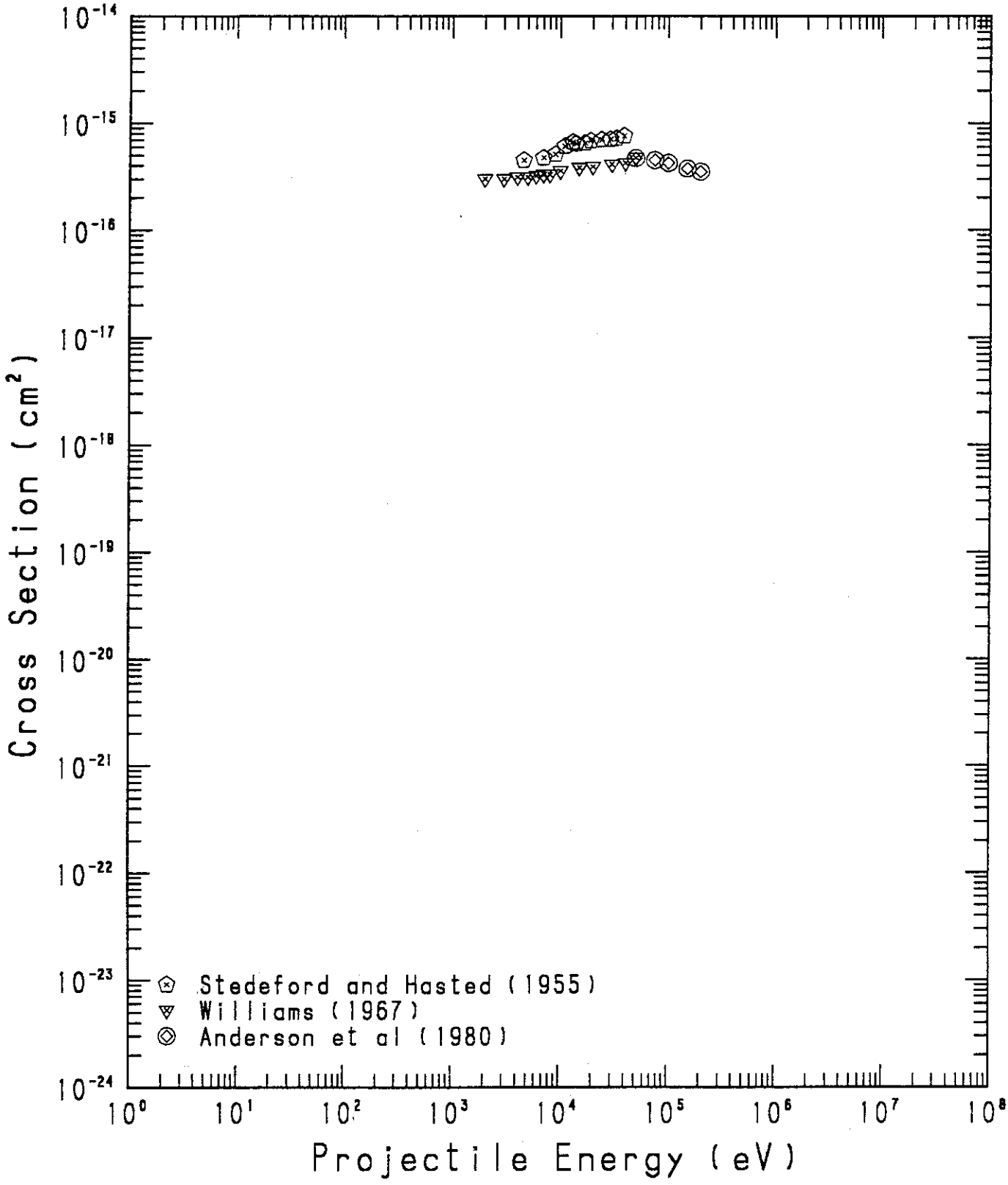

TABLE 22

PROCESS : H- + NE = H (-10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.60E+03	9.42E-01	4.49E-16
7.00E+03	1.16E+00	4.75E-16
9.00E+03	1.32E+00	5.10E-16
1.10E+04	1.46E+00	6.09E-16
1.30E+04	1.58E+00	6.67E-16
1.40E+04	1.64E+00	6.43E-16
1.70E+04	1.81E+00	6.53E-16
1.90E+04	1.91E+00	6.87E-16
2.40E+04	2.15E+00	6.98E-16
2.90E+04	2.37E+00	7.08E-16
3.30E+04	2.52E+00	7.18E-16
3.90E+04	2.74E+00	7.61E-16

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	3.01E-16
3.00E+03	7.61E-01	3.01E-16
4.00E+03	8.79E-01	3.13E-16
5.00E+03	9.82E-01	3.13E-16
6.00E+03	1.08E+00	3.23E-16
7.00E+03	1.16E+00	3.30E-16
8.00E+03	1.24E+00	3.30E-16
1.00E+04	1.39E+00	3.57E-16
1.50E+04	1.70E+00	3.83E-16
2.00E+04	1.96E+00	3.91E-16
3.00E+04	2.41E+00	4.12E-16
4.00E+04	2.78E+00	4.24E-16
5.00E+04	3.11E+00	4.74E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	4.70E-16
7.50E+04	3.80E+00	4.50E-16
1.00E+05	4.39E+00	4.23E-16
1.50E+05	5.38E+00	3.75E-16
2.00E+05	6.21E+00	3.50E-16

Fig.23 $H^- + Ar \rightarrow H \quad (\sigma_{-10})$

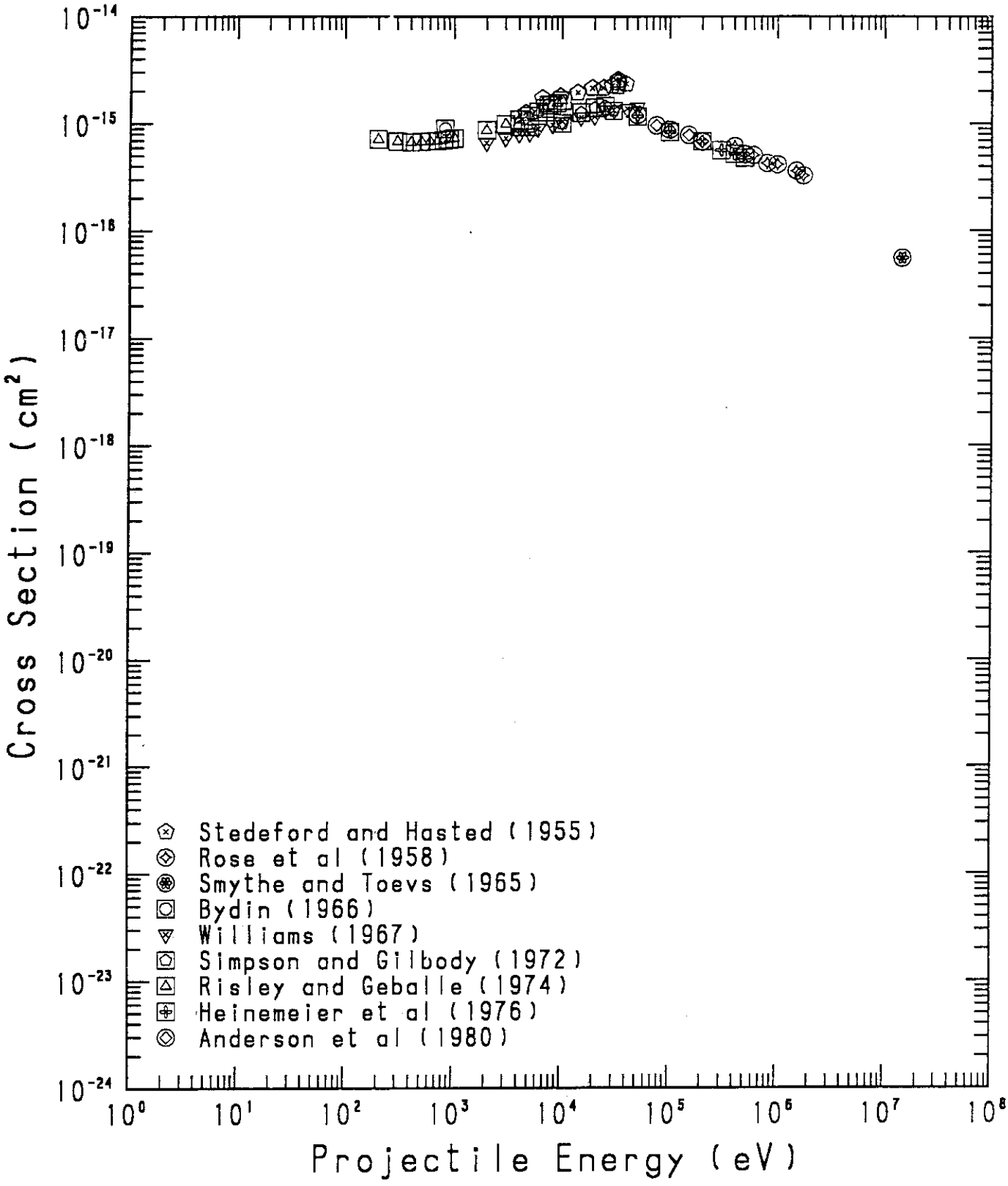

TABLE 23

PROCESS : H- + AR = H (-10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.60E+03	9.42E-01	1.26E-15
6.60E+03	1.13E+00	1.73E-15
9.60E+03	1.36E+00	1.80E-15
1.40E+04	1.64E+00	1.95E-15
1.90E+04	1.91E+00	2.14E-15
2.40E+04	2.15E+00	2.15E-15
2.90E+04	2.37E+00	2.26E-15
3.30E+04	2.52E+00	2.20E-15
3.30E+04	2.52E+00	2.55E-15
3.30E+04	2.52E+00	2.41E-15
3.90E+04	2.74E+00	2.35E-15

ROSE ET AL, BULL. AM. PHYS. SOC. II 3 40 (1958)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+05	8.79E+00	6.17E-16
5.00E+05	9.82E+00	5.20E-16
6.00E+05	1.08E+01	5.10E-16
8.00E+05	1.24E+01	4.29E-16
1.00E+06	1.39E+01	4.17E-16
1.50E+06	1.70E+01	3.63E-16
1.75E+06	1.84E+01	3.27E-16

SMYTHE AND TOEVS, PHYS. REV. 139 A15 (1965)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.46E+07	5.31E+01	5.56E-17

BYDIN, SOV. PHYS. JETP 22 762 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
8.29E+02	4.00E-01	9.00E-16
7.46E+03	1.20E+00	1.50E-15

TABLE 23 -CONTINUED

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	6.65E-16
3.00E+03	7.61E-01	7.34E-16
4.00E+03	8.79E-01	8.01E-16
5.00E+03	9.82E-01	8.16E-16
6.00E+03	1.08E+00	9.00E-16
8.20E+03	1.26E+00	9.74E-16
1.00E+04	1.39E+00	1.05E-15
1.50E+04	1.70E+00	1.15E-15
2.00E+04	1.96E+00	1.17E-15
2.50E+04	2.20E+00	1.34E-15
3.00E+04	2.41E+00	1.34E-15
4.00E+04	2.78E+00	1.38E-15
5.00E+04	3.11E+00	1.41E-15

SIMPSON AND GILBODY, J. PHYS. B5 1959 (1972)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+03	8.79E-01	9.45E-16
5.00E+03	9.82E-01	9.34E-16
1.00E+04	1.39E+00	1.01E-15
1.50E+04	1.70E+00	1.28E-15
2.00E+04	1.96E+00	1.41E-15
2.50E+04	2.20E+00	1.46E-15
3.00E+04	2.41E+00	1.32E-15

RISLEY AND GEBALLE, PHYS. REV. A9 2485 (1974)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+02	1.96E-01	7.16E-16
3.00E+02	2.41E-01	6.86E-16
4.00E+02	2.78E-01	6.74E-16
5.00E+02	3.11E-01	6.79E-16
6.00E+02	3.40E-01	6.88E-16
7.00E+02	3.68E-01	6.93E-16
8.00E+02	3.93E-01	7.06E-16
9.00E+02	4.17E-01	7.20E-16
1.00E+03	4.39E-01	7.34E-16
2.00E+03	6.21E-01	8.71E-16
3.00E+03	7.61E-01	9.95E-16
4.00E+03	8.79E-01	1.09E-15
5.00E+03	9.82E-01	1.18E-15
6.00E+03	1.08E+00	1.29E-15
7.00E+03	1.16E+00	1.39E-15

TABLE 23 -CONTINUED

8.00E+03	1.24E+00	1.49E-15
9.00E+03	1.32E+00	1.56E-15
1.00E+04	1.39E+00	1.65E-15

HEINEMEIER ET AL, J. PHYS. B9 2669 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.17E-15
1.00E+05	4.39E+00	8.40E-16
2.00E+05	6.21E+00	6.87E-16
3.00E+05	7.61E+00	5.68E-16
4.00E+05	8.79E+00	5.24E-16
5.00E+05	9.82E+00	4.81E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.21E-15
7.50E+04	3.80E+00	9.70E-16
1.00E+05	4.39E+00	8.84E-16
1.50E+05	5.38E+00	7.90E-16
2.00E+05	6.21E+00	6.85E-16

Fig.24 $H^- + Kr \rightarrow H \quad (\sigma_{-10})$

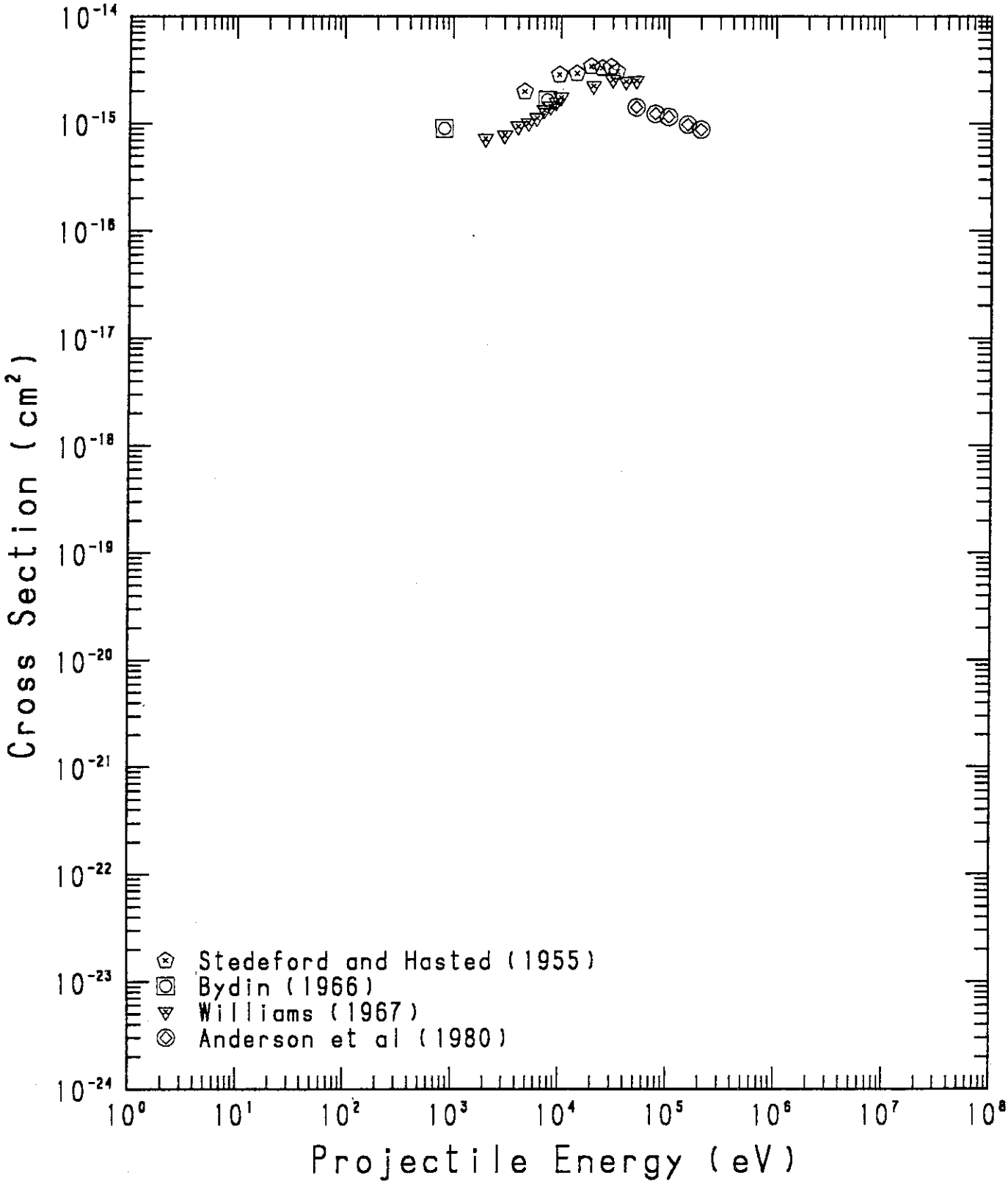

TABLE 24

PROCESS : H- + KR = H (-10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.60E+03	9.42E-01	1.97E-15
9.60E+03	1.36E+00	2.83E-15
1.40E+04	1.64E+00	2.91E-15
1.90E+04	1.91E+00	3.39E-15
2.40E+04	2.15E+00	3.27E-15
2.90E+04	2.37E+00	3.34E-15
3.30E+04	2.52E+00	3.02E-15

BYDIN, SOV. PHYS. JETP 22 762 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
8.29E+02	4.00E-01	9.00E-16
7.46E+03	1.20E+00	1.65E-15

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	7.19E-16
3.00E+03	7.61E-01	7.76E-16
4.00E+03	8.79E-01	9.36E-16
5.00E+03	9.82E-01	1.01E-15
6.00E+03	1.08E+00	1.12E-15
7.00E+03	1.16E+00	1.32E-15
8.00E+03	1.24E+00	1.44E-15
9.00E+03	1.32E+00	1.56E-15
1.00E+04	1.39E+00	1.74E-15
2.00E+04	1.96E+00	2.22E-15
3.00E+04	2.41E+00	2.55E-15
4.00E+04	2.78E+00	2.44E-15
5.00E+04	3.11E+00	2.49E-15

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.41E-15
7.50E+04	3.80E+00	1.23E-15
1.00E+05	4.39E+00	1.15E-15

TABLE 24 -CONTINUED

1.50E+05	5.38E+00	9.80E-16
2.00E+05	6.21E+00	8.80E-16

Fig.25 $H^- + Xe \rightarrow H \quad (\sigma_{-10})$

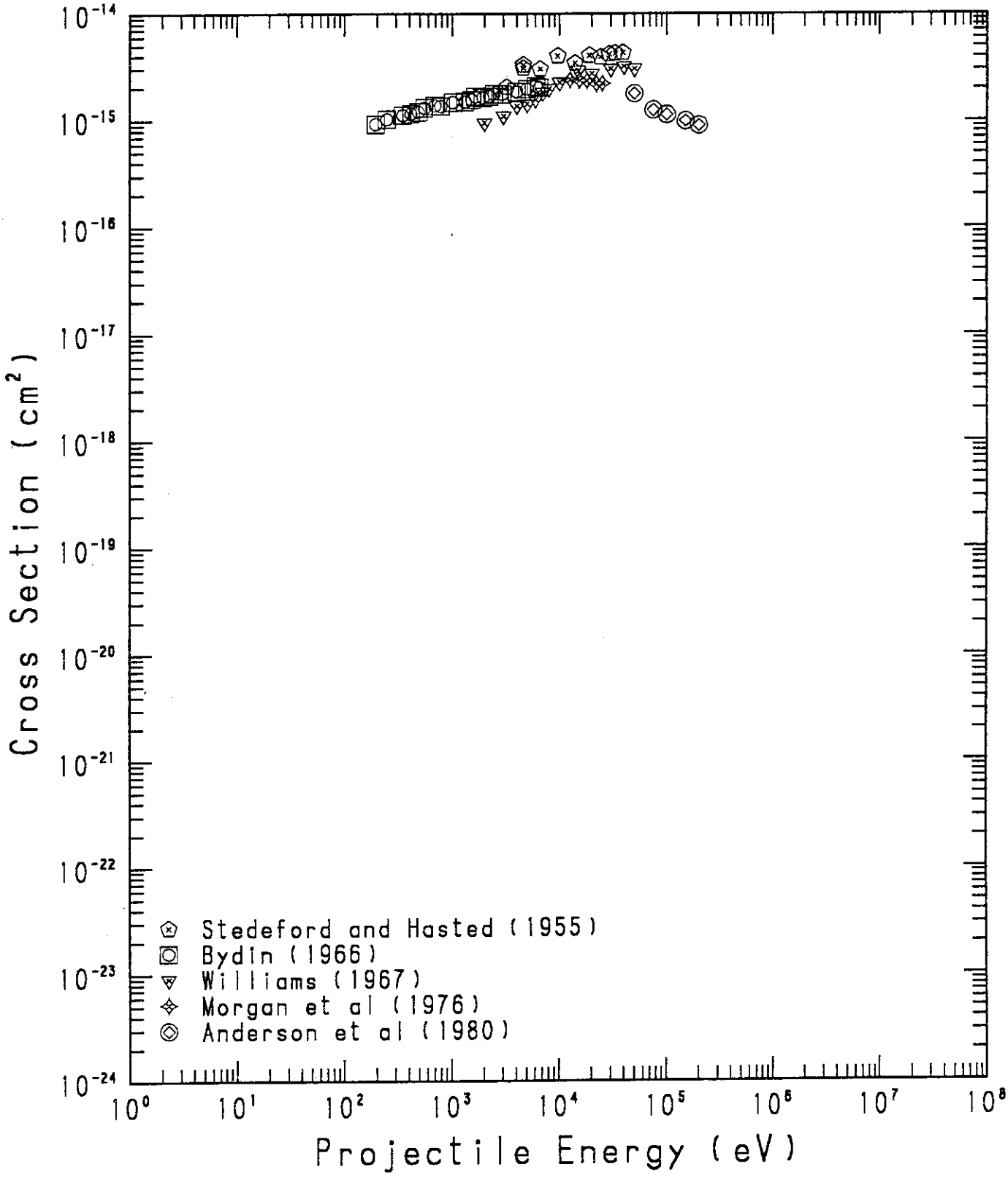

TABLE 25

PROCESS : H- + XE = H (-10)

STEDEFORD AND HASTED, PROC. ROY. SOC. A227 466 (1955)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.20E+03	7.86E-01	2.04E-15
4.60E+03	9.42E-01	3.08E-15
4.60E+03	9.42E-01	3.31E-15
6.60E+03	1.13E+00	3.02E-15
9.60E+03	1.36E+00	4.00E-15
1.40E+04	1.64E+00	3.43E-15
1.90E+04	1.91E+00	4.03E-15
2.40E+04	2.15E+00	3.90E-15
2.90E+04	2.37E+00	4.15E-15
3.30E+04	2.52E+00	4.23E-15
3.90E+04	2.74E+00	4.29E-15

BYDIN, SOV. PHYS. JETP 22 762 (1966)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.93E+02	1.93E-01	9.27E-16
2.44E+02	2.17E-01	1.03E-15
3.44E+02	2.58E-01	1.12E-15
4.11E+02	2.82E-01	1.16E-15
4.83E+02	3.05E-01	1.20E-15
5.51E+02	3.26E-01	1.31E-15
6.85E+02	3.64E-01	1.38E-15
7.76E+02	3.87E-01	1.36E-15
1.01E+03	4.41E-01	1.48E-15
1.32E+03	5.05E-01	1.48E-15
1.32E+03	5.05E-01	1.51E-15
1.51E+03	5.40E-01	1.56E-15
1.63E+03	5.61E-01	1.67E-15
1.93E+03	6.10E-01	1.63E-15
2.22E+03	6.54E-01	1.68E-15
2.43E+03	6.85E-01	1.76E-15
2.91E+03	7.49E-01	1.76E-15
3.96E+03	8.74E-01	1.85E-15
4.94E+03	9.76E-01	1.96E-15
6.02E+03	1.08E+00	2.08E-15
6.44E+03	1.11E+00	2.02E-15

TABLE 25 -CONTINUED

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	9.51E-16
3.00E+03	7.61E-01	1.10E-15
4.00E+03	8.79E-01	1.36E-15
5.00E+03	9.82E-01	1.42E-15
6.00E+03	1.08E+00	1.57E-15
7.00E+03	1.16E+00	1.82E-15
8.00E+03	1.24E+00	1.98E-15
1.00E+04	1.39E+00	2.25E-15
1.50E+04	1.70E+00	2.90E-15
2.00E+04	1.96E+00	2.73E-15
3.00E+04	2.41E+00	3.02E-15
4.00E+04	2.78E+00	3.18E-15
5.00E+04	3.11E+00	3.02E-15

MORGAN ET AL, PHYS. REV. A22 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.25E+04	1.55E+00	2.38E-15
1.53E+04	1.72E+00	2.35E-15
1.80E+04	1.86E+00	2.34E-15
2.20E+04	2.06E+00	2.18E-15
2.50E+04	2.20E+00	2.20E-15

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.77E-15
7.50E+04	3.80E+00	1.25E-15
1.00E+05	4.39E+00	1.13E-15
1.50E+05	5.38E+00	9.90E-16
2.00E+05	6.21E+00	9.00E-16

Fig.26 $H^- + He \rightarrow H^+ (\sigma_{-11})$

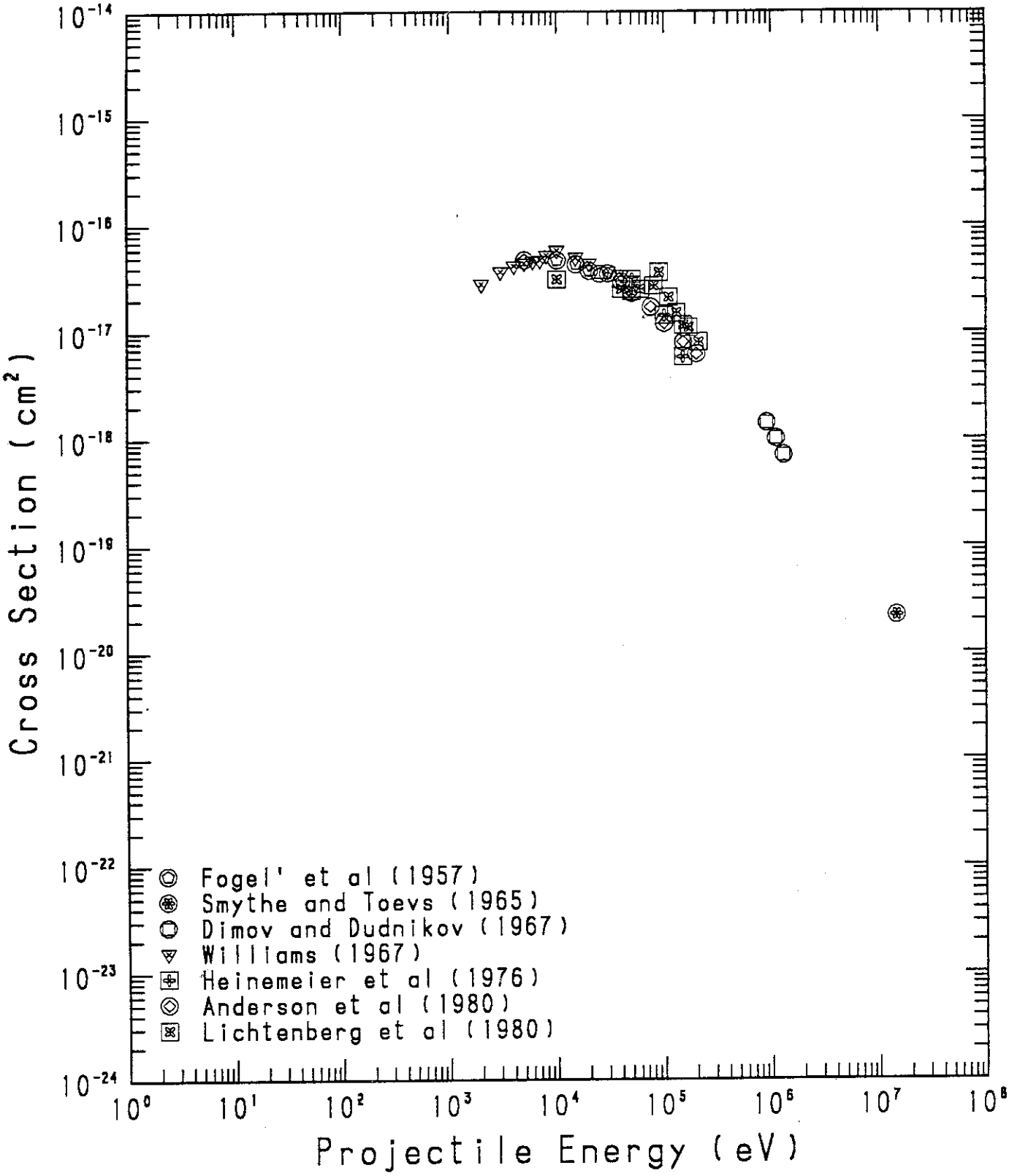

TABLE 26

PROCESS : H- + HE = H+ (-11)

FOGEL' ET AL, SOV. PHYS. JETP 5 382 (1957)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	4.70E-17
1.00E+04	1.39E+00	4.68E-17
1.50E+04	1.70E+00	4.28E-17
2.00E+04	1.96E+00	3.71E-17
2.50E+04	2.20E+00	3.48E-17
3.00E+04	2.41E+00	3.51E-17
4.00E+04	2.78E+00	2.93E-17

SMYTHE AND TOEVS, PHYS. REV. 139 A15 (1965)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.46E+07	5.31E+01	2.20E-20

DIMOV AND DUDNIKOV, SOV. PHYS. TP 11 919 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
9.00E+05	1.32E+01	1.40E-18
1.10E+06	1.46E+01	1.00E-18
1.30E+06	1.58E+01	7.00E-19

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	2.80E-17
3.00E+03	7.61E-01	3.66E-17
4.00E+03	8.79E-01	4.16E-17
5.00E+03	9.82E-01	4.40E-17
6.00E+03	1.08E+00	4.58E-17
7.00E+03	1.16E+00	4.68E-17
8.00E+03	1.24E+00	5.21E-17
1.00E+04	1.39E+00	5.78E-17
1.50E+04	1.70E+00	4.93E-17
2.00E+04	1.96E+00	4.38E-17
3.00E+04	2.41E+00	3.67E-17
4.00E+04	2.78E+00	3.43E-17
5.00E+04	3.11E+00	3.02E-17

TABLE 26 -CONTINUED

HEINEMEIER ET AL, J. PHYS. B9 2669 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	3.10E-17
1.00E+05	4.39E+00	1.42E-17
1.50E+05	5.38E+00	5.80E-18

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	2.30E-17
7.50E+04	3.80E+00	1.70E-17
1.00E+05	4.39E+00	1.20E-17
1.50E+05	5.38E+00	8.00E-18
2.00E+05	6.21E+00	6.20E-18

LICHTENBERG ET AL, J. PHYS. B13 343 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
4.00E+04	2.78E+00	2.50E-17
5.00E+04	3.11E+00	2.40E-17
6.00E+04	3.40E+00	2.50E-17
8.00E+04	3.93E+00	2.70E-17
9.00E+04	4.17E+00	3.60E-17
1.00E+04	1.39E+00	3.10E-17
1.10E+05	4.61E+00	2.10E-17
1.30E+05	5.01E+00	1.50E-17
1.50E+05	5.38E+00	1.15E-17
1.70E+05	5.73E+00	1.10E-17
2.10E+05	6.37E+00	8.00E-18

Fig.27 $H^- + Ne \rightarrow H^+ (\sigma_{-11})$

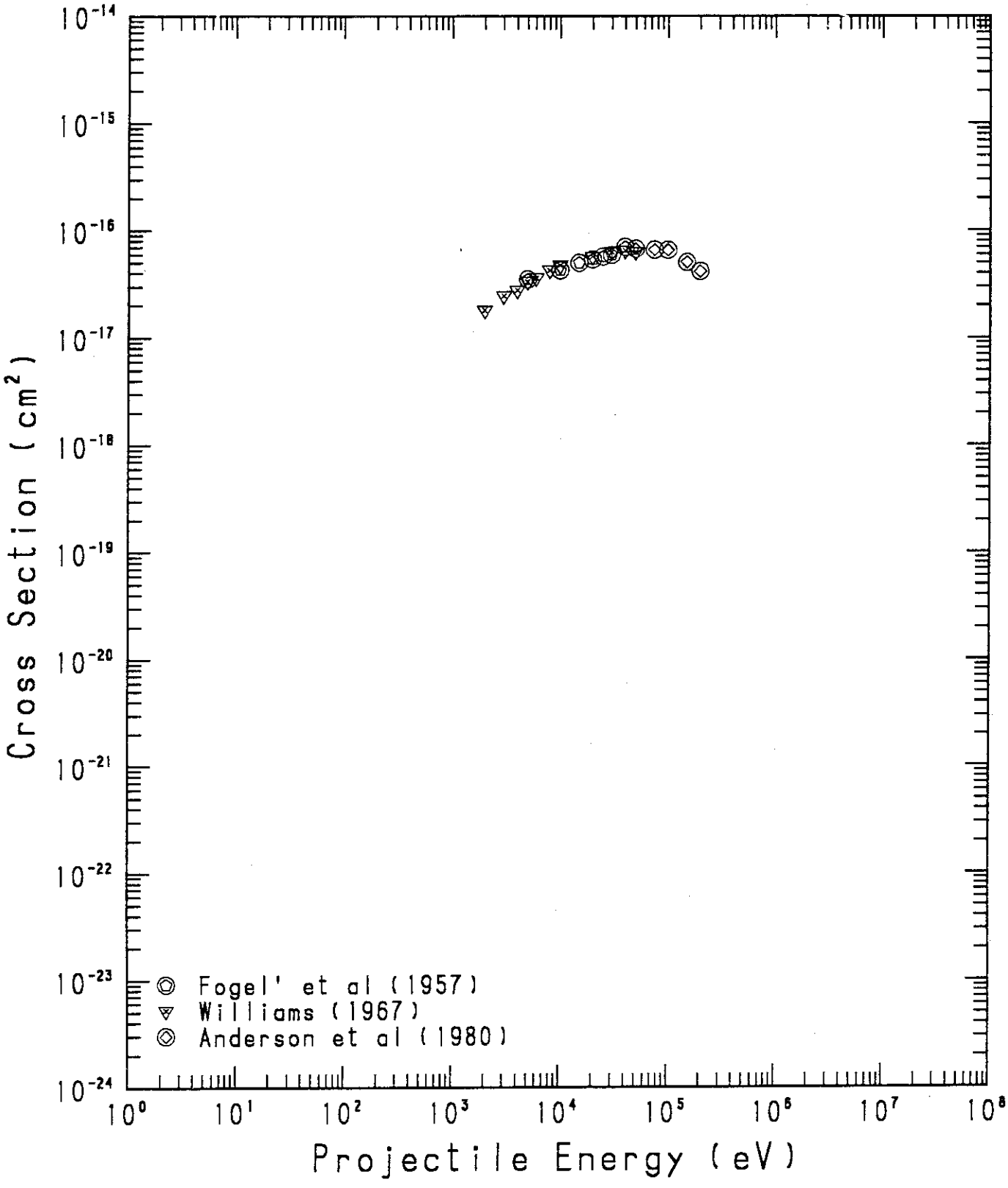

TABLE 27

PROCESS : H- + NE = H+ (-11)

FOGEL' ET AL, SOV. PHYS. JETP 5 382 (1957)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.50E-17
1.00E+04	1.39E+00	4.24E-17
1.50E+04	1.70E+00	4.98E-17
2.00E+04	1.96E+00	5.34E-17
2.50E+04	2.20E+00	5.70E-17
3.00E+04	2.41E+00	5.90E-17
4.00E+04	2.78E+00	6.99E-17

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	1.80E-17
3.00E+03	7.61E-01	2.45E-17
4.00E+03	8.79E-01	2.77E-17
5.00E+03	9.82E-01	3.32E-17
6.00E+03	1.08E+00	3.59E-17
8.00E+03	1.24E+00	4.23E-17
1.00E+04	1.39E+00	4.70E-17
2.00E+04	1.96E+00	5.67E-17
3.00E+04	2.41E+00	6.28E-17
4.00E+04	2.78E+00	6.47E-17
5.00E+04	3.11E+00	6.28E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	6.73E-17
7.50E+04	3.80E+00	6.59E-17
1.00E+05	4.39E+00	6.56E-17
1.50E+05	5.38E+00	5.05E-17
2.00E+05	6.21E+00	4.15E-17

Fig.28 $H^- + Ar \rightarrow H^+ (\sigma_{-11})$

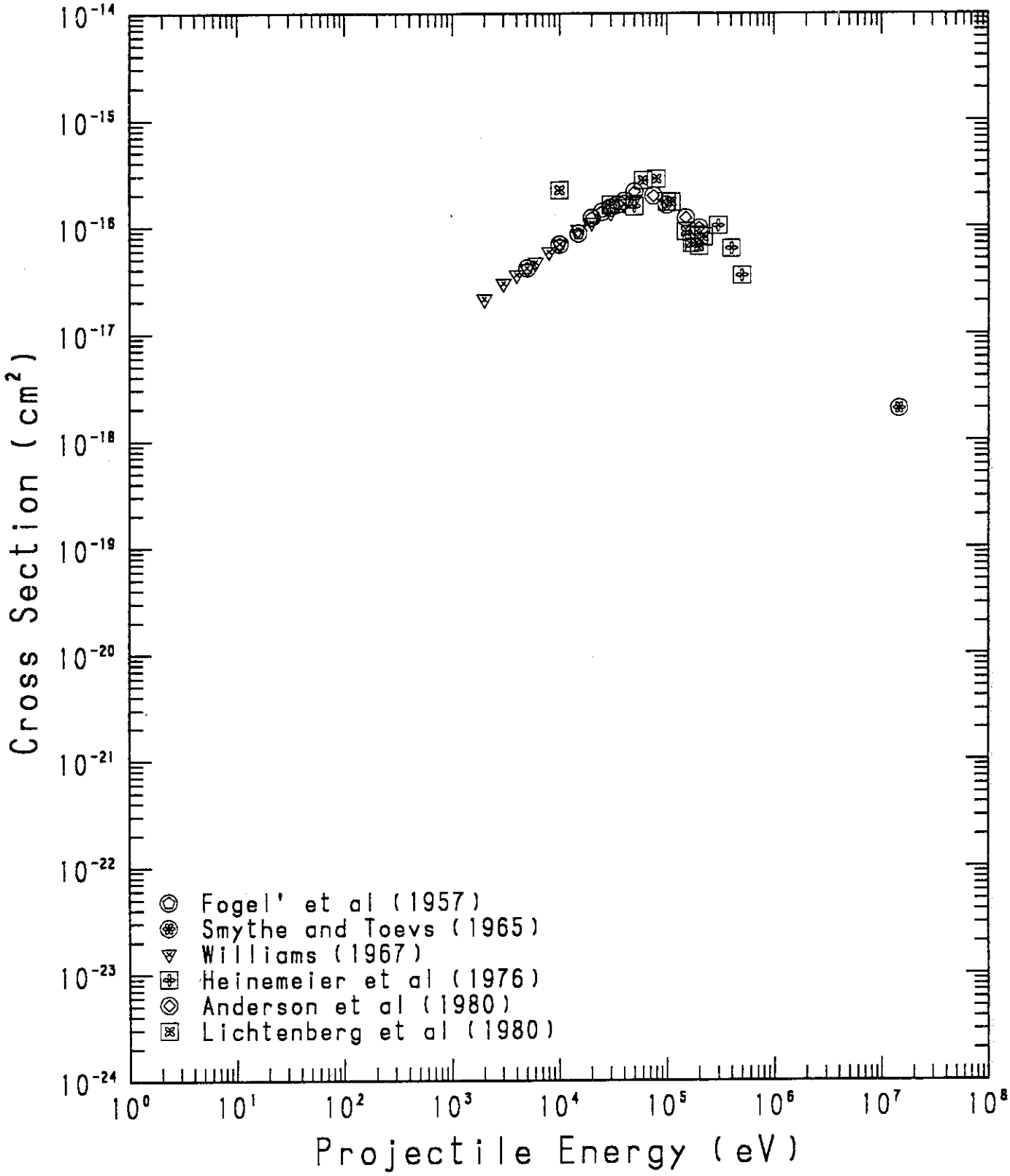

TABLE 28

PROCESS : H- + AR = H+ (-11)

FOGEL' ET AL, SOV. PHYS. JETP 5 382 (1957)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	4.10E-17
1.00E+04	1.39E+00	6.84E-17
1.50E+04	1.70E+00	8.67E-17
2.00E+04	1.96E+00	1.21E-16
2.50E+04	2.20E+00	1.38E-16
3.00E+04	2.41E+00	1.51E-16
3.50E+04	2.60E+00	1.61E-16
4.00E+04	2.78E+00	1.74E-16

SMYTHE AND TOEVS, PHYS. REV. 139 A15 (1965)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.46E+07	5.31E+01	1.96E-18

WILLIAMS, PHYS. REV. 154 9 (1967)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
2.00E+03	6.21E-01	2.11E-17
3.00E+03	7.61E-01	2.95E-17
4.00E+03	8.79E-01	3.56E-17
5.00E+03	9.82E-01	4.09E-17
6.00E+03	1.08E+00	4.66E-17
8.00E+03	1.24E+00	5.85E-17
1.00E+04	1.39E+00	6.89E-17
1.50E+04	1.70E+00	9.40E-17
2.00E+04	1.96E+00	1.09E-16
3.00E+04	2.41E+00	1.36E-16
4.00E+04	2.78E+00	1.62E-16
5.00E+04	3.11E+00	1.77E-16

HEINEMEIER ET AL, J. PHYS. B9 2669 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.55E-16
1.00E+05	4.39E+00	1.71E-16
2.00E+05	6.21E+00	8.25E-17
3.00E+05	7.61E+00	1.02E-16

TABLE 28 －CONTINUED

4.00E+05	8.79E+00	6.25E-17
5.00E+05	9.82E+00	3.48E-17

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	2.12E-16
7.50E+04	3.80E+00	1.94E-16
1.00E+05	4.39E+00	1.60E-16
1.50E+05	5.38E+00	1.21E-16
2.00E+05	6.21E+00	9.70E-17

LICHTENBERG ET AL, J. PHYS. B13 343 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
3.00E+04	2.41E+00	1.60E-16
6.00E+04	3.40E+00	2.70E-16
8.00E+04	3.93E+00	2.80E-16
1.00E+04	1.39E+00	2.20E-16
1.10E+05	4.61E+00	1.70E-16
1.50E+05	5.38E+00	9.00E-17
1.70E+05	5.73E+00	7.00E-17
1.80E+05	5.89E+00	7.00E-17
2.00E+05	6.21E+00	6.50E-17
2.20E+05	6.52E+00	8.00E-17

Fig.29 $H^- + Kr \rightarrow H^+ (\sigma_{-11})$

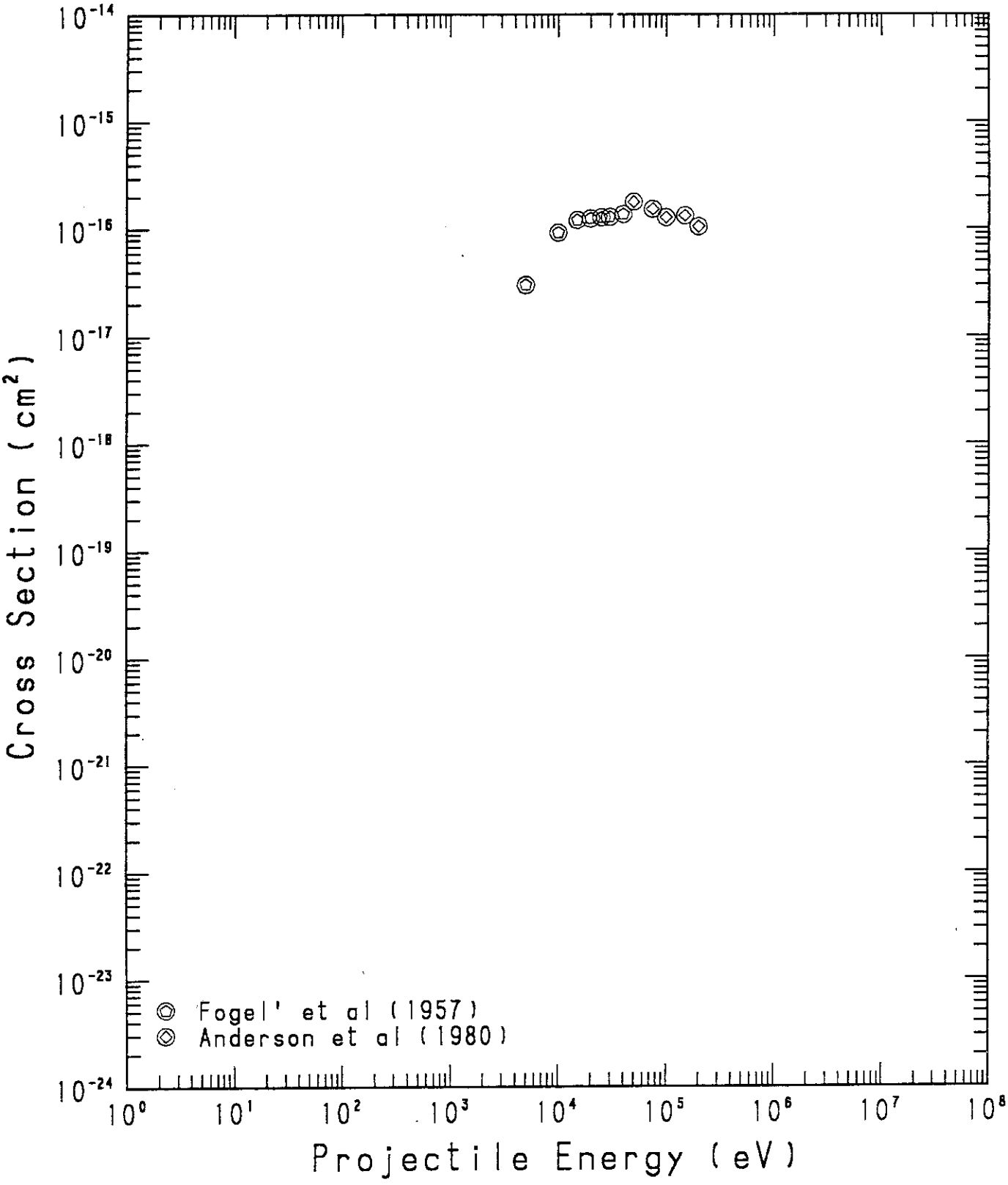

TABLE 29

PROCESS : H- + KR = H+ (-11)

FOGEL' ET AL, SOV. PHYS. JETP 5 382 (1957)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+03	9.82E-01	3.01E-17
1.00E+04	1.39E+00	9.22E-17
1.50E+04	1.70E+00	1.21E-16
2.00E+04	1.96E+00	1.25E-16
2.50E+04	2.20E+00	1.28E-16
3.00E+04	2.41E+00	1.29E-16
4.00E+04	2.78E+00	1.37E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	1.79E-16
7.50E+04	3.80E+00	1.53E-16
1.00E+05	4.39E+00	1.28E-16
1.50E+05	5.38E+00	1.33E-16
2.00E+05	6.21E+00	1.05E-16

Fig.30 $H^- + Xe \rightarrow H^+ (\sigma_{-11})$

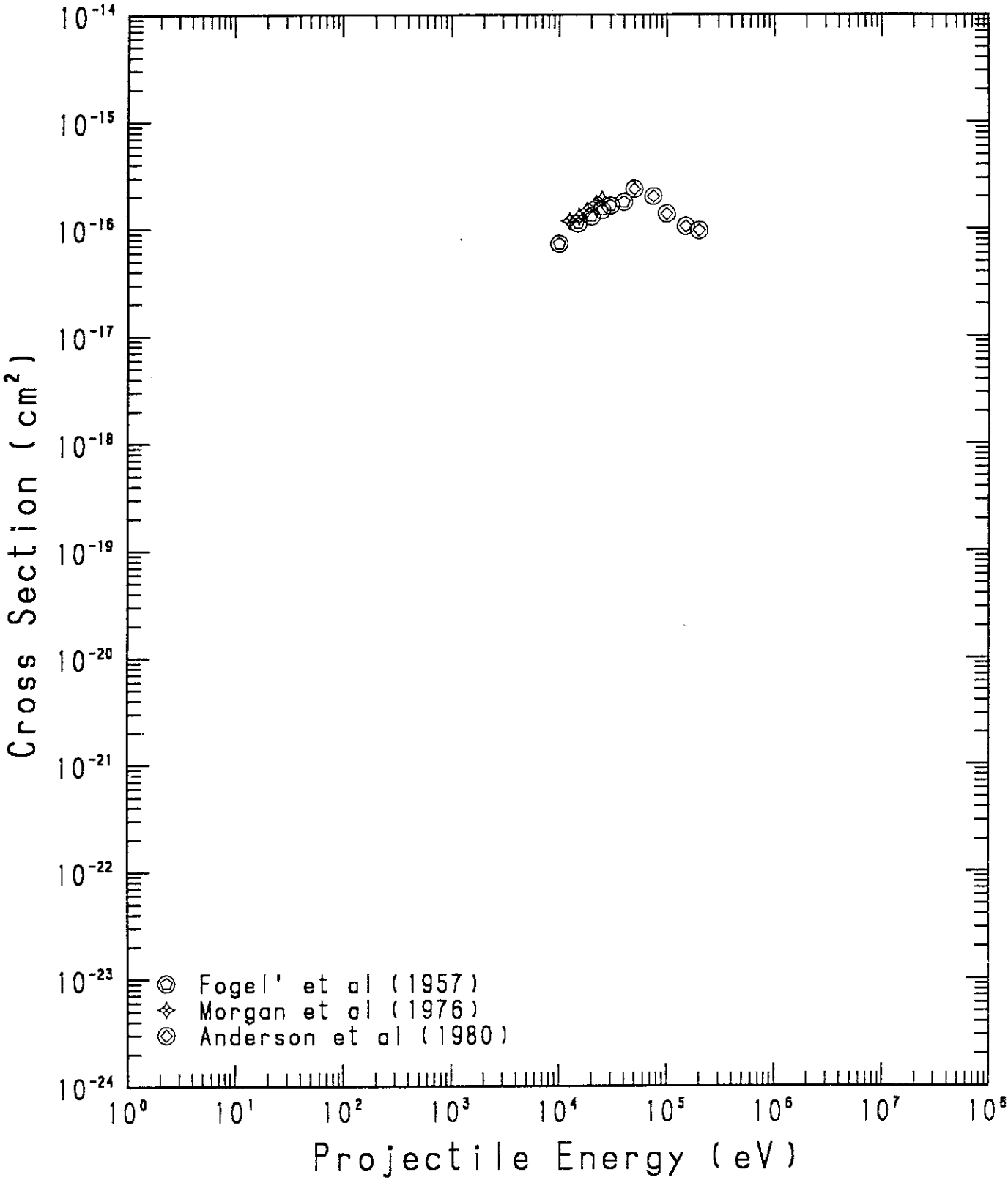

TABLE 30

PROCESS : H- + XE = H+ (-11)

FOGEL' ET AL, SOV. PHYS. JETP 5 382 (1957)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.00E+04	1.39E+00	7.28E-17
1.50E+04	1.70E+00	1.12E-16
2.00E+04	1.96E+00	1.30E-16
2.50E+04	2.20E+00	1.49E-16
3.00E+04	2.41E+00	1.64E-16
4.00E+04	2.78E+00	1.78E-16

MORGAN ET AL, PHYS. REV. A14 664 (1976)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
1.25E+04	1.55E+00	1.18E-16
1.53E+04	1.72E+00	1.29E-16
1.80E+04	1.86E+00	1.46E-16
2.20E+04	2.06E+00	1.71E-16
2.50E+04	2.20E+00	1.87E-16

ANDERSON ET AL, PHYS. REV. A22 822 (1980)

E(EV)	V(10(8)*CM/SEC)	SIGMA(CM(2))
5.00E+04	3.11E+00	2.35E-16
7.50E+04	3.80E+00	2.01E-16
1.00E+05	4.39E+00	1.38E-16
1.50E+05	5.38E+00	1.06E-16
2.00E+05	6.21E+00	9.70E-17