uthors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks Nb
				Film	X-tal	Bulk	Prep		
KC65	0.05-5	Ellips				x		n,k,σ	
PU66	∿2.5-55	Trans	∿2000			x	Heat	$Im(\varepsilon^{-1})$	energy loss spectroscopy at several temperatures
Bia66	0.6-2.6	Ellips				x		n,k	filamentary samples at several temperatures
LT66	0.06-0.25	Ellips				x	MP	$\varepsilon_2/\lambda, \varepsilon_1$	
LTA66	0.1-3.5	Ellips				x	MP	$\varepsilon_2/\lambda, \varepsilon_1$	
Le67	0.1-4	Ellips				x	MP	ε_2/λ	data from LT66 and LTA66
WAK67	3-14.4					x	Ex	R	polarimetry $3 < h\nu < 5$ eV, reflectance $4 < h\nu < 7$ eV, photoemission $7.5 < h\nu < 14.4$ eV
GLM69	0.12-3.1	Ellips	4.2, 78, 293			x	EP	n,k	plotted RT data, table λ,n,k
WL073	0.1-36.4	Refl	4.2 K for $h\nu < 4.5$ eV RT for $h\nu > 4.5$ eV		x		EP	A,R; KK: $\varepsilon_1, \varepsilon_2$, $Im(\varepsilon^{-1})$	absorptivity measured by calorimetry $h\nu \leq 4.5$ eV, reflectance $h\nu \geq 5$ eV with synchrotron radiation. See also RCF80 and BL077
SCG75	0.32-5.5	Trans, Refl		x			In	σ	uhv evaporation
SCGP75	0.32-5.5	Trans		x			In	T	uhv evaporation
CGS76	0.32-5.5	Trans, Refl		x			In	σ	uhv evaporation
WO76	20-250			x			Ex	μ	optical absorption measurements with synchrotron radiation
BDL77	0.03-3.1	Refl				x	MP	R	also emissivity 400-850 K

Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks Nb
				Film	X-tal	Bulk	Prep		
KN78	0.07-4.66	Ellips			x		EP	$n,k,\sigma,\varepsilon_1,\varepsilon_2$	table λ,n,k
TLT78	6.6-23	m-θ				x	Heat	$R,\varepsilon_1,\varepsilon_2,Im(\varepsilon^{-1})$	foil heated to 2000 K in uhv
GCS79	0.32-5.6	Trans, Refl		x			In	σ	uhv
NC80	0.5-6.5	Trans, Refl		x			Ex	n,k,σ	substrate 975-1175 K
NCC80	0.5-6.5	Trans, Refl		x			Ex	σ	
LA Unpl	1.5-5.5	Ellips		x				$\varepsilon_1,\varepsilon_2,n,k,R,\mu$	private communication
KNB68	5-12	Ellips						R; KK: $\sigma, Im(\varepsilon^{-1}), Im(\varepsilon+1)^{-1}$	KK analyzed data from VAK67

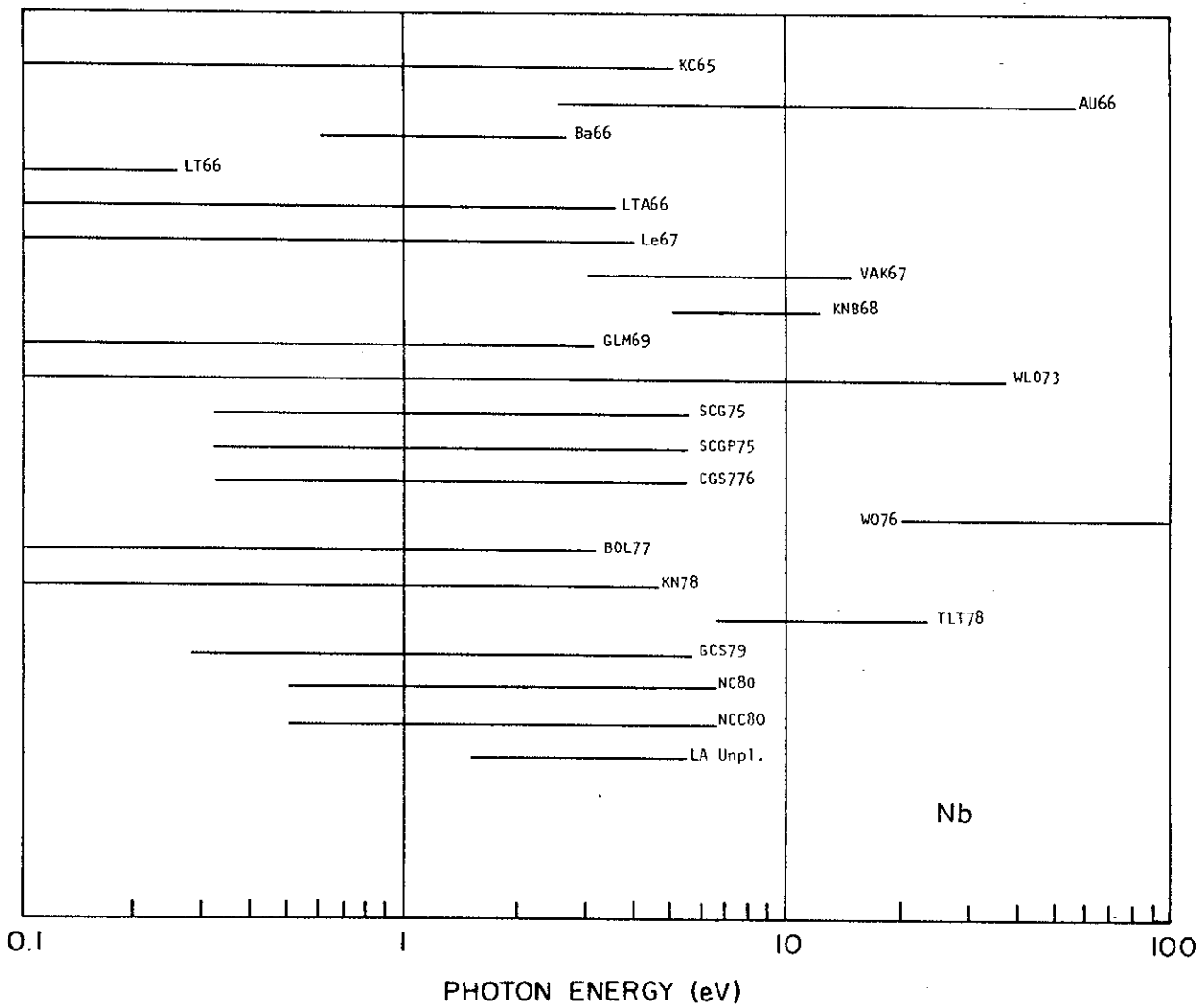

Fig. 43 Survey of available data for Nb

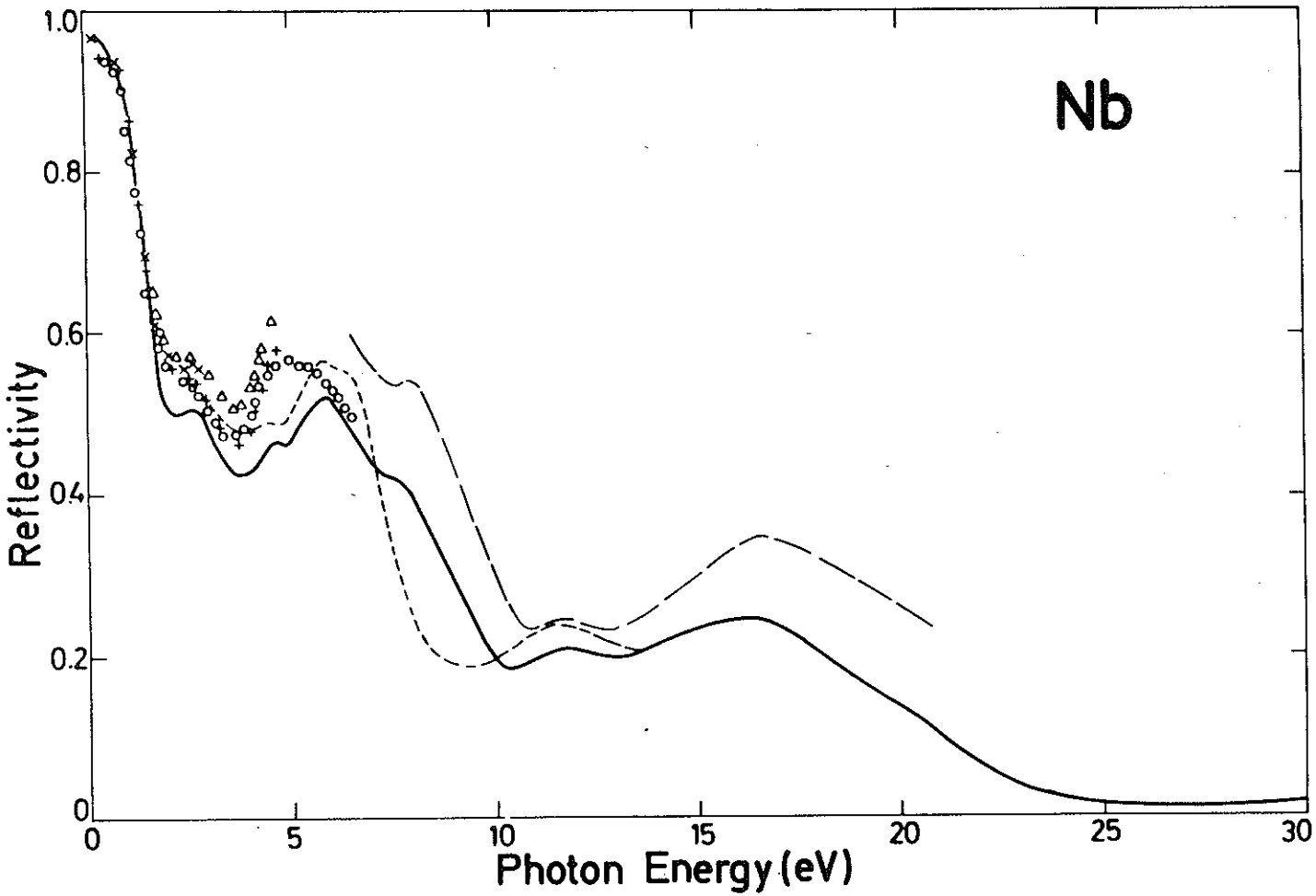

Fig. 44 Reflectivity of Nb. —— WL073; --- VAK67; — — TLT78; xxx GLM69; +++ KN78; ooo NC80; ΔΔΔ LA unpub.

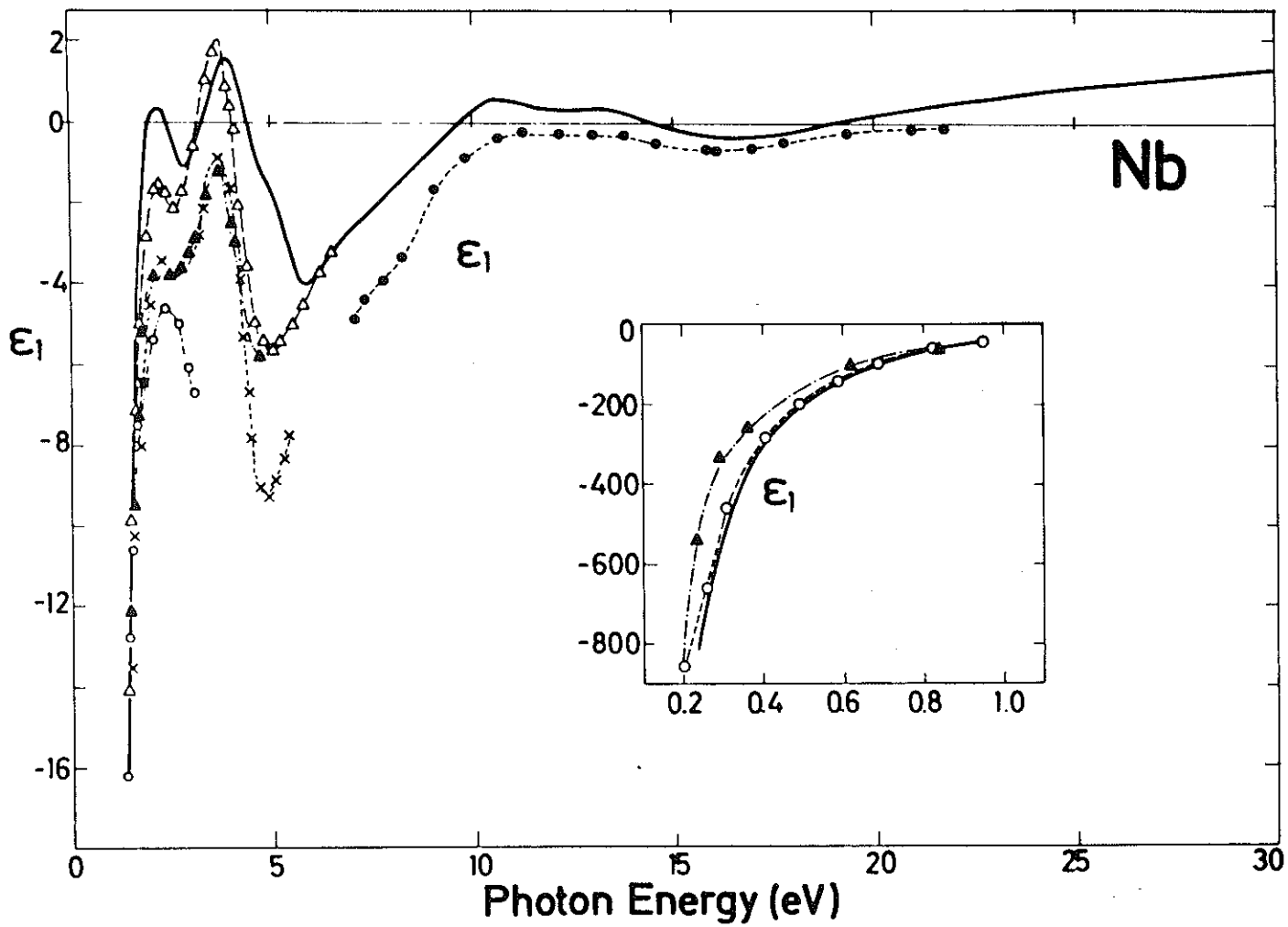

Fig. 45 ε_1 for Nb. —— WL073; ●●● TLT78; ooo GLM69; ΔΔΔ NC80; ▲▲▲ KN78; xxx LA unpub.

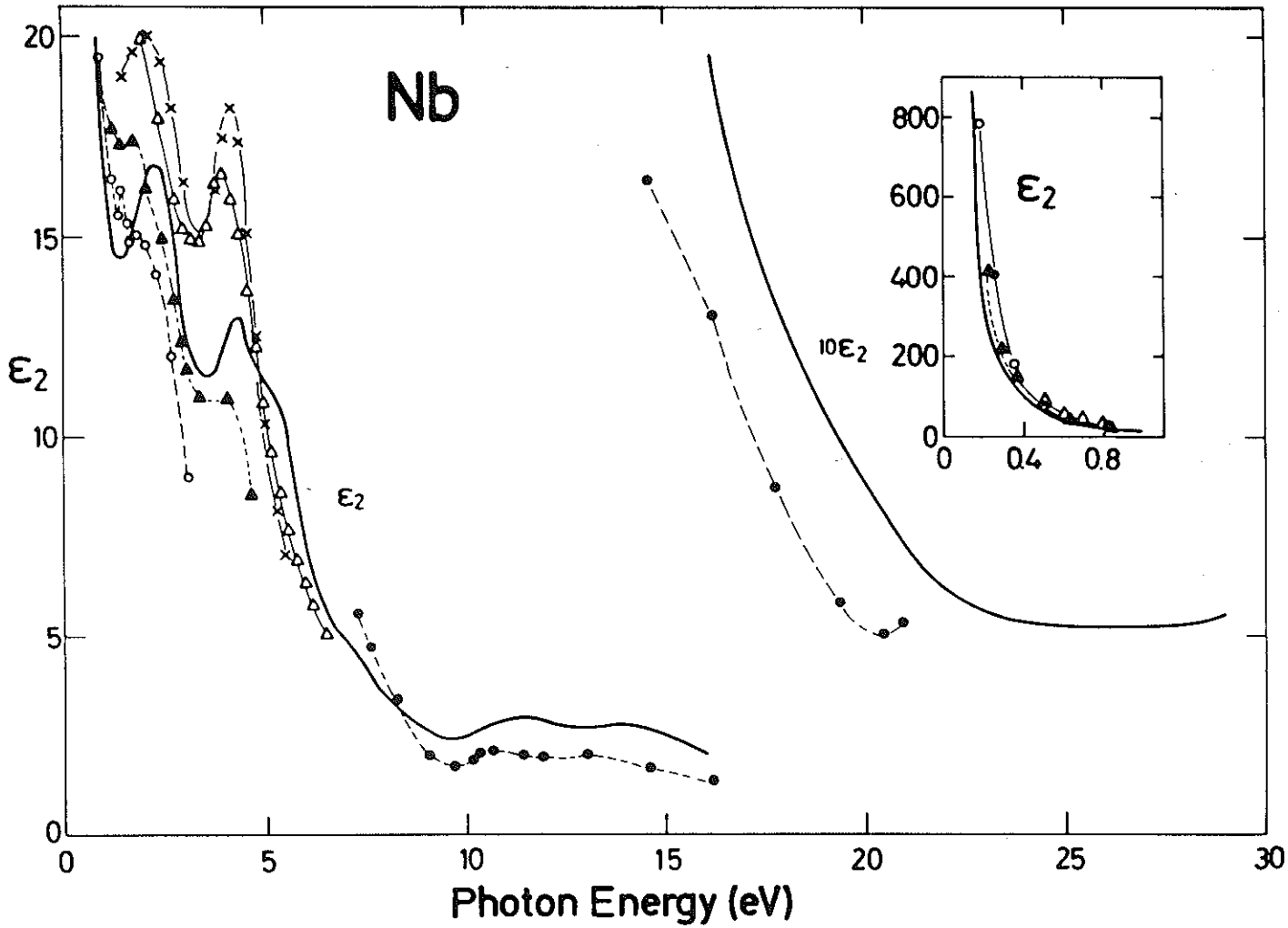

Fig. 46 ε_2 for Nb. —— WL073; ●●● TLT78; ooo GLM69; ΔΔΔ NC80; ▲▲▲ KN78; xxx LA unpub.

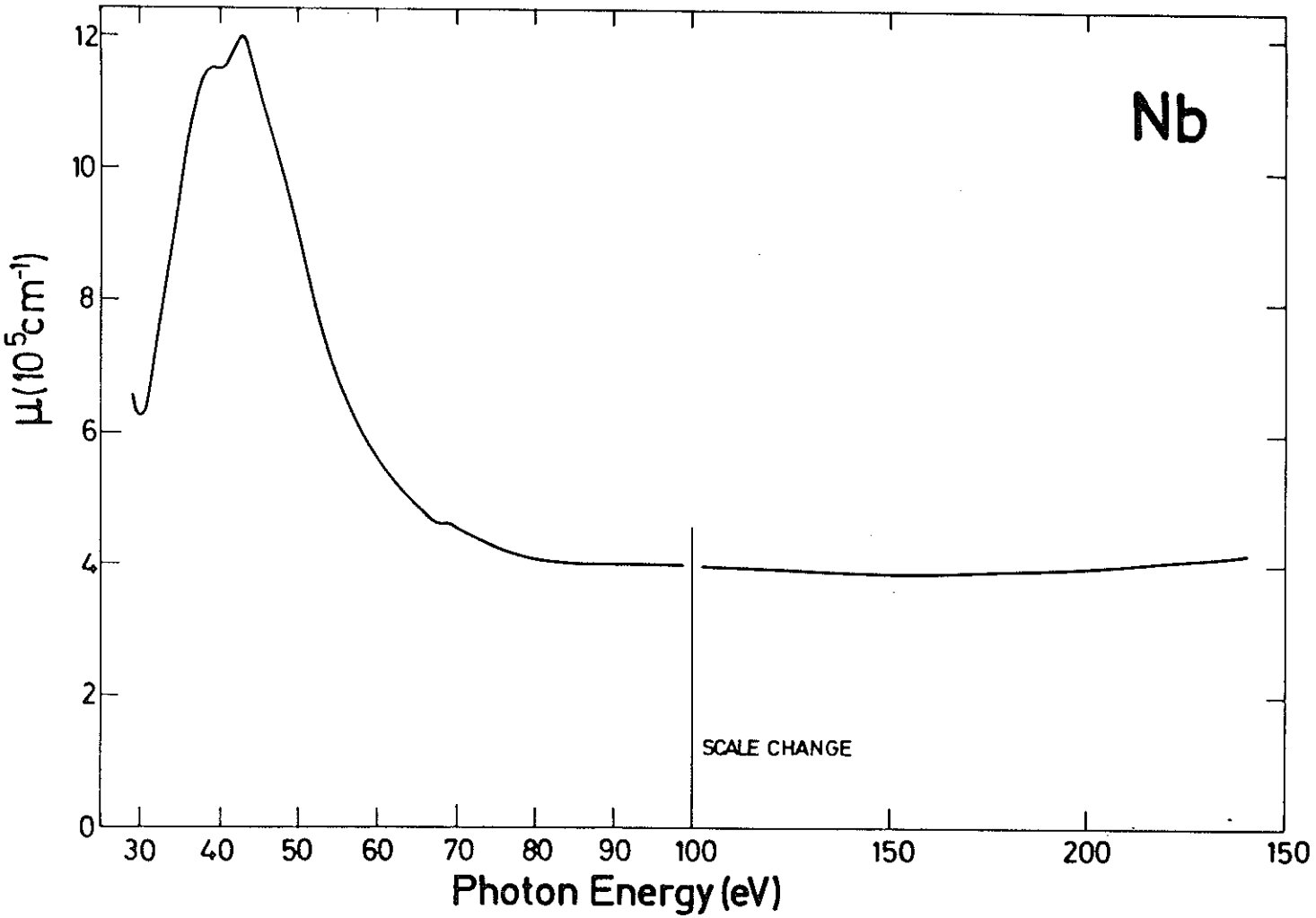

Fig. 47 Absorption coefficient for Nb reported by W076.

Niobium

publication by J.H. Weaver, D.W. Lynch, and C.G. Olson in Phys. Rev. B 7, 4311 (1973) based on the following tabulation

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
0.12	-2574.77	1701.03	15.99	53.20	0.00	.979
0.16	-1630.82	853.53	10.24	41.66	0.00	.978
0.20	-1112.83	494.79	7.25	34.14	0.00	.976
0.24	-803.81	316.12	5.47	28.88	0.00	.975
0.28	-604.16	212.42	4.26	24.95	0.00	.974
0.35	-391.64	124.40	3.11	20.03	0.00	.970
0.45	-237.62	71.15	2.28	15.58	0.00	.964
0.55	-157.19	46.47	1.83	12.67	0.00	.956
0.65	-109.67	33.33	1.57	10.59	0.00	.947
0.75	-79.07	25.42	1.41	9.00	0.00	.935
0.85	-58.04	20.87	1.35	7.74	0.01	.918
0.95	-43.10	18.09	1.35	6.70	0.01	.893
1.05	-32.21	16.84	1.44	5.86	0.01	.857
1.15	-24.44	16.08	1.55	5.18	0.02	.814
1.25	-18.68	15.25	1.65	4.63	0.03	.768
1.35	-13.97	14.51	1.76	4.13	0.04	.715
1.45	-9.78	14.37	1.95	3.68	0.05	.650
1.55	-6.68	14.49	2.15	3.37	0.06	.595
1.65	-4.21	14.77	2.36	3.13	0.06	.552
1.75	-2.51	15.17	2.54	2.99	0.06	.527
1.85	-1.09	15.56	2.69	2.89	0.06	.510
1.95	-0.25	16.13	2.82	2.86	0.06	.505
2.05	0.12	16.56	2.89	2.87	0.06	.505
2.15	0.29	16.75	2.92	2.87	0.06	.505
2.25	0.32	16.83	2.93	2.87	0.06	.505
2.35	0.24	16.83	2.92	2.88	0.06	.506
2.45	-0.04	16.78	2.89	2.90	0.06	.509
2.55	-0.52	16.52	2.83	2.92	0.06	.512
2.65	-0.90	15.93	2.74	2.90	0.06	.511
2.75	-1.14	15.22	2.66	2.86	0.07	.507
2.85	-1.16	14.43	2.58	2.80	0.07	.500
3.00	-0.88	13.43	2.51	2.68	0.07	.485
3.10	-0.65	12.90	2.48	2.60	0.08	.475
3.20	-0.40	12.42	2.45	2.53	0.08	.465
3.30	-0.04	11.98	2.44	2.45	0.08	.453
3.40	0.39	11.71	2.46	2.38	0.09	.442
3.50	0.72	11.59	2.48	2.33	0.09	.435
3.60	1.10	11.51	2.52	2.29	0.09	.428
3.70	1.38	11.63	2.56	2.27	0.08	.426
3.80	1.52	11.81	2.59	2.28	0.08	.427
3.90	1.61	12.00	2.62	2.29	0.08	.429
4.00	1.57	12.28	2.64	2.33	0.08	.434
4.20	1.10	12.78	2.64	2.42	0.08	.447
4.40	-0.12	12.96	2.53	2.56	0.08	.467
4.60	-0.84	12.21	2.39	2.56	0.08	.470
4.80	-0.93	11.68	2.32	2.52	0.09	.465
5.00	-1.47	11.62	2.26	2.57	0.08	.475
5.20	-2.20	11.33	2.16	2.62	0.09	.487
5.40	-3.15	10.73	2.00	2.68	0.09	.505

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
5.60	-3.85	9.66	1.81	2.67	0.09	.518
5.80	-4.06	8.49	1.63	2.60	0.10	.522
6.00	-4.00	7.45	1.49	2.49	0.10	.520
6.20	-3.75	6.56	1.38	2.38	0.11	.512
6.40	-3.34	5.89	1.31	2.25	0.13	.496
6.60	-3.00	5.40	1.26	2.14	0.14	.480
6.80	-2.63	5.04	1.24	2.04	0.16	.460
7.00	-2.32	4.82	1.23	1.96	0.17	.441
7.20	-2.14	4.67	1.22	1.91	0.18	.430
7.40	-2.10	4.49	1.20	1.88	0.18	.427
7.60	-2.12	4.20	1.14	1.85	0.19	.430
7.80	-2.05	3.80	1.07	1.78	0.20	.428
8.00	-1.82	3.44	1.02	1.69	0.23	.412
8.20	-1.55	3.17	1.00	1.60	0.25	.390
8.40	-1.29	2.98	0.99	1.51	0.28	.365
8.60	-1.06	2.83	0.99	1.43	0.31	.340
8.70	-0.95	2.77	0.99	1.39	0.32	.328
8.80	-0.84	2.71	1.00	1.36	0.34	.315
8.90	-0.73	2.65	1.00	1.32	0.35	.302
9.00	-0.63	2.61	1.01	1.29	0.36	.290
9.10	-0.52	2.57	1.02	1.25	0.37	.277
9.20	-0.42	2.54	1.04	1.22	0.38	.265
9.30	-0.30	2.52	1.06	1.19	0.39	.252
9.40	-0.24	2.52	1.07	1.18	0.39	.245
9.50	-0.15	2.50	1.08	1.15	0.40	.235
9.60	-0.08	2.48	1.10	1.13	0.40	.227
9.70	0.01	2.46	1.11	1.11	0.41	.218
9.80	0.10	2.45	1.13	1.09	0.41	.209
9.90	0.20	2.45	1.15	1.06	0.41	.200
10.00	0.29	2.48	1.18	1.05	0.40	.194
10.10	0.36	2.51	1.20	1.04	0.39	.190
10.20	0.43	2.55	1.23	1.04	0.38	.187
10.30	0.49	2.59	1.25	1.04	0.37	.185
10.40	0.54	2.65	1.27	1.04	0.36	.185
10.50	0.56	2.72	1.29	1.05	0.35	.187
10.60	0.57	2.77	1.30	1.06	0.35	.190
10.70	0.56	2.81	1.31	1.07	0.34	.192
10.80	0.56	2.85	1.32	1.08	0.34	.195
10.90	0.54	2.88	1.32	1.09	0.34	.197
11.00	0.52	2.90	1.32	1.10	0.33	.200
11.10	0.50	2.92	1.32	1.11	0.33	.202
11.20	0.47	2.93	1.31	1.12	0.33	.204
11.30	0.45	2.94	1.31	1.12	0.33	.206
11.40	0.42	2.93	1.30	1.13	0.33	.207
11.60	0.37	2.91	1.28	1.13	0.34	.209
11.80	0.34	2.87	1.27	1.13	0.34	.210
12.00	0.31	2.82	1.25	1.12	0.35	.209
12.20	0.31	2.77	1.25	1.11	0.36	.207
12.40	0.32	2.73	1.24	1.10	0.36	.204
12.60	0.35	2.70	1.24	1.09	0.36	.201
12.80	0.36	2.70	1.24	1.09	0.36	.200
13.00	0.36	2.70	1.24	1.09	0.36	.200
13.20	0.35	2.71	1.24	1.09	0.36	.201
13.40	0.33	2.74	1.24	1.10	0.36	.204
13.60	0.28	2.75	1.23	1.12	0.36	.208
13.80	0.21	2.74	1.22	1.13	0.36	.213
14.00	0.16	2.72	1.20	1.13	0.37	.216

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
14.20	0.09	2.70	1.18	1.14	0.37	.220
14.40	0.03	2.67	1.16	1.15	0.37	.225
14.60	-0.04	2.63	1.14	1.15	0.38	.229
14.80	-0.11	2.57	1.11	1.16	0.39	.234
15.00	-0.18	2.50	1.08	1.16	0.40	.238
15.20	-0.24	2.42	1.05	1.16	0.41	.242
15.40	-0.29	2.33	1.02	1.15	0.42	.245
15.60	-0.32	2.24	0.99	1.14	0.44	.247
15.80	-0.36	2.14	0.95	1.13	0.45	.249
16.00	-0.37	2.05	0.92	1.11	0.47	.250
16.20	-0.38	1.95	0.89	1.09	0.49	.250
16.40	-0.38	1.85	0.87	1.06	0.52	.249
16.60	-0.36	1.76	0.85	1.04	0.55	.246
16.80	-0.35	1.67	0.82	1.02	0.57	.244
17.00	-0.33	1.59	0.80	0.99	0.60	.240
17.20	-0.31	1.51	0.79	0.96	0.64	.236
17.40	-0.28	1.44	0.77	0.93	0.67	.230
17.60	-0.24	1.37	0.76	0.90	0.71	.224
17.80	-0.21	1.31	0.75	0.87	0.75	.217
18.00	-0.17	1.25	0.74	0.85	0.79	.209
18.20	-0.13	1.20	0.73	0.82	0.82	.201
18.40	-0.09	1.16	0.73	0.79	0.86	.192
18.60	-0.06	1.12	0.73	0.77	0.89	.185
18.80	-0.02	1.08	0.73	0.74	0.93	.177
19.00	0.01	1.04	0.72	0.72	0.96	.170
19.20	0.05	1.01	0.73	0.69	0.99	.161
19.40	0.07	0.99	0.73	0.68	1.01	.155
19.60	0.09	0.95	0.72	0.66	1.04	.150
19.80	0.12	0.92	0.72	0.64	1.07	.143
20.00	0.14	0.89	0.72	0.62	1.10	.137
20.20	0.16	0.86	0.72	0.60	1.12	.131
20.40	0.19	0.83	0.72	0.57	1.15	.125
20.60	0.20	0.79	0.71	0.55	1.19	.119
20.80	0.24	0.75	0.72	0.52	1.21	.110
21.00	0.28	0.72	0.72	0.50	1.21	.100
21.20	0.32	0.69	0.73	0.47	1.20	.091
21.40	0.35	0.67	0.74	0.45	1.17	.083
21.60	0.39	0.65	0.75	0.43	1.14	.075
21.80	0.42	0.63	0.77	0.41	1.10	.068
22.00	0.45	0.62	0.78	0.40	1.07	.063
22.20	0.48	0.60	0.79	0.38	1.02	.056
22.40	0.52	0.58	0.81	0.36	0.96	.050
22.60	0.55	0.57	0.82	0.35	0.91	.045
22.80	0.58	0.56	0.83	0.34	0.86	.041
23.00	0.61	0.56	0.85	0.33	0.82	.038
23.20	0.64	0.55	0.86	0.32	0.77	.034
23.40	0.66	0.54	0.87	0.31	0.74	.032
23.60	0.69	0.54	0.88	0.30	0.70	.029
23.80	0.72	0.54	0.90	0.30	0.67	.027
24.00	0.74	0.53	0.91	0.29	0.64	.025
24.20	0.76	0.53	0.92	0.29	0.62	.024
24.40	0.79	0.53	0.93	0.28	0.59	.023
24.60	0.81	0.53	0.94	0.28	0.57	.022
24.80	0.82	0.53	0.95	0.28	0.55	.021
25.00	0.85	0.52	0.96	0.27	0.53	.020
25.20	0.86	0.53	0.97	0.27	0.51	.019
25.40	0.88	0.52	0.98	0.27	0.50	.018

Nb

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
25.60	0.90	0.52	0.99	0.26	0.48	.018
25.80	0.92	0.52	0.99	0.26	0.47	.017
26.00	0.94	0.52	1.00	0.26	0.45	.017
26.20	0.95	0.52	1.01	0.26	0.44	.016
26.40	0.97	0.52	1.02	0.26	0.43	.016
26.60	0.99	0.52	1.03	0.25	0.42	.016
26.80	1.00	0.52	1.03	0.25	0.41	.016
27.00	1.02	0.52	1.04	0.25	0.40	.015
27.20	1.03	0.52	1.05	0.25	0.39	.015
27.40	1.05	0.53	1.05	0.25	0.38	.015
27.60	1.07	0.53	1.06	0.25	0.37	.015
27.80	1.09	0.52	1.07	0.25	0.36	.015
28.00	1.11	0.53	1.08	0.24	0.35	.015
28.20	1.13	0.53	1.09	0.24	0.34	.015
28.40	1.14	0.54	1.10	0.24	0.34	.015
28.60	1.16	0.54	1.11	0.24	0.33	.016
28.80	1.19	0.55	1.12	0.25	0.32	.016
29.00	1.21	0.55	1.13	0.25	0.31	.017
29.20	1.23	0.56	1.14	0.25	0.31	.017
29.40	1.25	0.58	1.15	0.25	0.30	.018
29.60	1.27	0.60	1.16	0.26	0.30	.020
29.80	1.29	0.62	1.17	0.27	0.30	.021
30.00	1.31	0.66	1.18	0.28	0.31	.023
30.20	1.31	0.68	1.18	0.29	0.31	.024
30.40	1.30	0.71	1.18	0.30	0.32	.026
30.60	1.29	0.73	1.18	0.31	0.33	.026
30.80	1.28	0.73	1.17	0.31	0.33	.026
31.00	1.29	0.73	1.18	0.31	0.33	.026
31.20	1.30	0.74	1.18	0.31	0.33	.027
31.40	1.32	0.75	1.19	0.32	0.33	.028
31.60	1.32	0.77	1.20	0.32	0.33	.029
31.80	1.33	0.79	1.20	0.33	0.33	.030
32.00	1.33	0.81	1.20	0.34	0.33	.031
32.20	1.33	0.83	1.21	0.35	0.34	.032
32.40	1.33	0.85	1.21	0.35	0.34	.034
32.60	1.33	0.87	1.21	0.36	0.34	.035
32.80	1.33	0.90	1.21	0.37	0.35	.036
33.00	1.32	0.92	1.21	0.38	0.35	.036
33.20	1.31	0.94	1.21	0.39	0.36	.039
33.40	1.30	0.96	1.21	0.40	0.37	.040
33.60	1.29	0.98	1.21	0.41	0.37	.041
33.80	1.28	1.00	1.21	0.41	0.38	.043
34.00	1.27	1.02	1.20	0.42	0.39	.044
34.40	1.23	1.05	1.20	0.44	0.40	.046
34.80	1.20	1.08	1.19	0.46	0.42	.049
35.20	1.15	1.11	1.17	0.47	0.43	.051
35.60	1.11	1.13	1.16	0.49	0.45	.053
36.00	1.06	1.15	1.15	0.50	0.47	.056
36.40	1.01	1.16	1.13	0.51	0.49	.058
36.80	0.95	1.15	1.11	0.52	0.52	.060
37.50	0.85	1.14	1.07	0.53	0.56	.064
38.50	0.73	1.06	1.00	0.53	0.64	.065
39.50	0.66	0.96	0.95	0.50	0.71	.063
40.50	0.62	0.86	0.92	0.47	0.77	.059