Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks
				Film	X-tal	Bulk	Prep		Ni
Sa39	2.6-27.6	Refl		x			Ex	R	
Rob59	0.47-3.4	Ellips	88, 298, 473			x	EP	$n,k,\varepsilon_1,\varepsilon_2$	
EP063	0.1-11	Refl				x	EP	R; KK: $\varepsilon_1,\varepsilon_2$, $Im(\varepsilon^{-1}),\sigma$	
DM65	0.1-1	Ellips				x		n,k	table λ,n,k
LT66	0.06-0.25	Ellips				x	MP	$\varepsilon_2/\lambda,\varepsilon_1$	
Le67	<4	Ellips				x	MP	ε_2/λ	data from LT66 and LTA66
LTA66	0.1-3.5						MP	$\varepsilon_2/\lambda,\varepsilon_1$	
NS66	∿0.1-3	Ellips				x	Heat	σ	heated $\sim10^{-6}$, ∿725 K after MP
GL68	2-5.6	m-θ				x	MP	$\varepsilon_2/\lambda,\varepsilon_1$	
BG68	0.1-1.24	Refl	4.2			x		A	absorptivity measured by calorimetry
FSH69	0.2-10	Refl				x		R	
SHK69	40-300	Trans		x			Ex	μ	optical absorption with synchrotron radiation
SP69	0.46-5.86	Ellips	77-770			x	Heat	ε_2/λ	heated in situ ∿770 K after EP
VA69	4-24	Refl		x			In	R; KK: $n,k,\varepsilon_1,\varepsilon_2$, $Im(\varepsilon^{-1}),Im(\varepsilon+1)^{-1}$	also photoemission
SS70	0.5-12	Refl				x	Heat	R	Ni and NiCu annealed in situ, also photoemission
St70	2-35	Ellips	77, 500			x	EP	σ/c	

Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks
				Film	X-tal	Bulk	Prep		Ni
BGK71	56-84	Trans		x			In	μ	optical absorption with synchrotron radiation
LRW71	0.08-4	Refl	4.2		x		EP	A; KK: σ	absorptivity measured by calorimetry, extended to 20 eV using data of others hν > 4 eV
SN71	0.07-4.13	Ellips				x		n,k,ε_1,σ	table λ,n,k
St71	2-3	Ellips	77, 290, 500		x		Heat	σ/c	heated ∿10^{-7}, ∿670 K in situ after MP
ZR71			400-1100			x		ε_H	technique: caliorimetry; emissivity calculated
JPT72	0.02-0.5	Refl	8, 300			x		A	
Ki72	0.06-4.9	Ellips			x		EP	n,k,σ,μ	table λ,n,k
GSS73	1.1-4.9	Ellips				x	MP	R,n,k,σ	heated ∿725 K, ∿10^{-6} Torr ex situ afte
VP73	2-3	Refl	130, 295	x		x	EP, Sput	R	high precision reflectance with Al reference; electropolished, annealed, Ar sputtered and films
JC74	0.64-6.6	Trans, Refl		x			Ex	n,k,σ	Table E,n,k
WeG74	2-130	Trans		x			Ex	KK: μ	energy loss spectroscopy
WGa74	2-120	Trans		x			Ex	μ, Im(ε^{-1}); KK: ε_1,ε_2	energy loss spectroscopy
RG75			1300-1550	x				ε at λ = 6500 Å	
SN75	0.07-4.13	Ellips				x	Heat	σ	heated ∿750 K ex situ after MP

Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks
				Film	X-tal	Bulk	Prep		Ni
St75	1.8-3.5	Ellips	4.2, 300			x	EP	R,ε_1,ε_2	high precision $\tilde{\varepsilon}$
MKN76	∿2.5-5.0	Refl		x				KK: ε_1	
MRD76	2-27	Refl		x		x	Sput	R; ε_1,ε_2	synchrotron radiation
Sm77	1.96, 2.27	Ellips				x	Sput	n,k	extensive surface studies, MP, annealed, sputtered, AES
ST77	0.05-0.1	Ellips	295		x		MP	ε_2/λ,ε_1	
TDB77	∿0.4-6.5	Refl		x			Ex	KK: σ	differential beam studies of NiCu; films annealed ∿675 K
GSB78	0.37-3.1	Ellips	RT,1673, 1873			x	Melt	n,k,σ	plotted dtat is at RT; table λ,n,k
SJ78	2-3	Ellips			x		Heat	$\varepsilon_2(h\nu)^2$,ε_2/λ	heated ∿10^{-7}, ∿700 K in situ after MP
FSS79	0-150	Trans		x			Ex	KK: ε_1,ε_2,μ,R, $Im(\varepsilon^{-1})$	energy loss spectroscopy
SJ79	0.46-5.7	Ellips	160-685		x		Heat	ε_2/λ	heated in situ ∿10^{-9}, ∿700 K

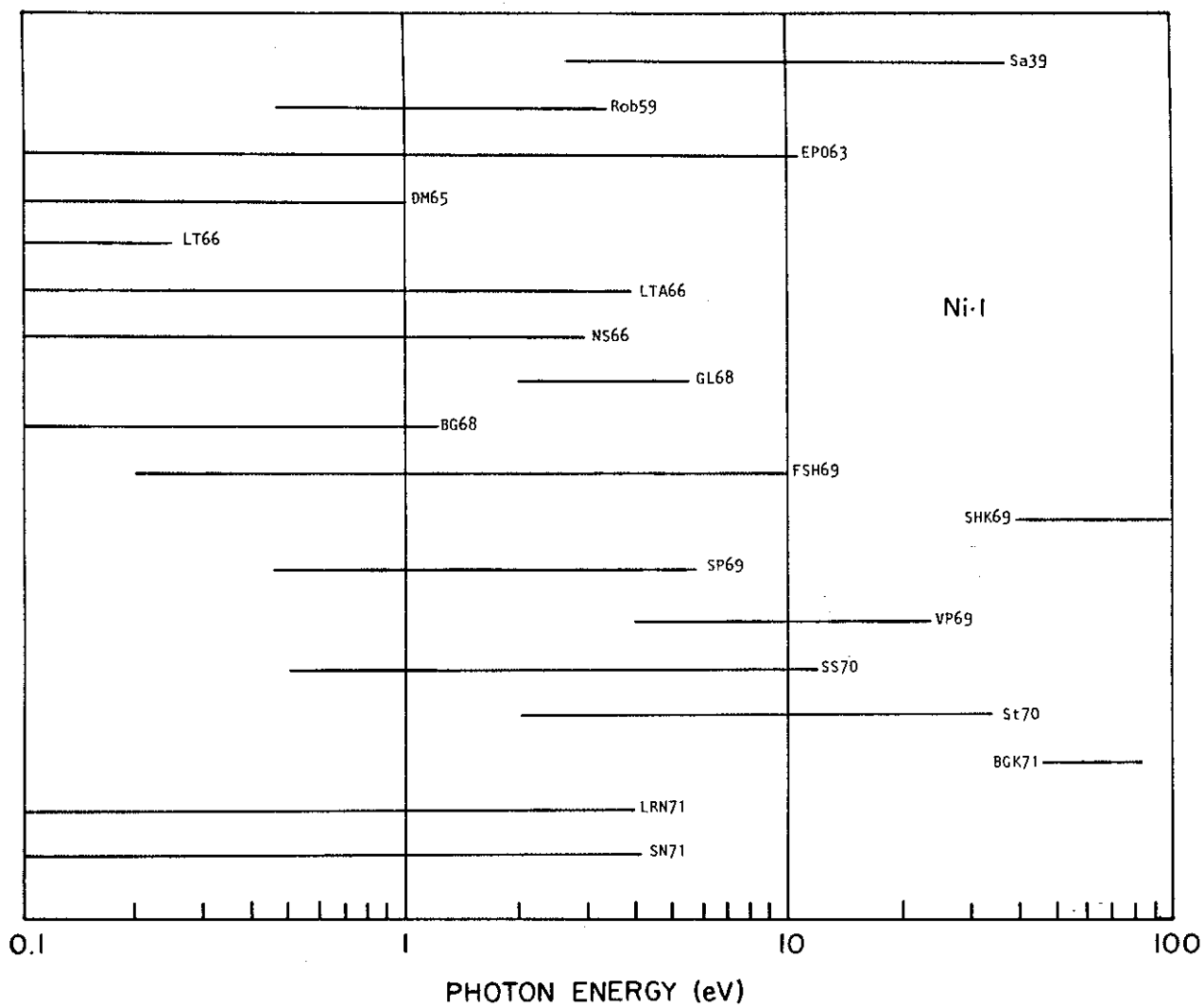

Fig. 32 Survey of available data for Ni

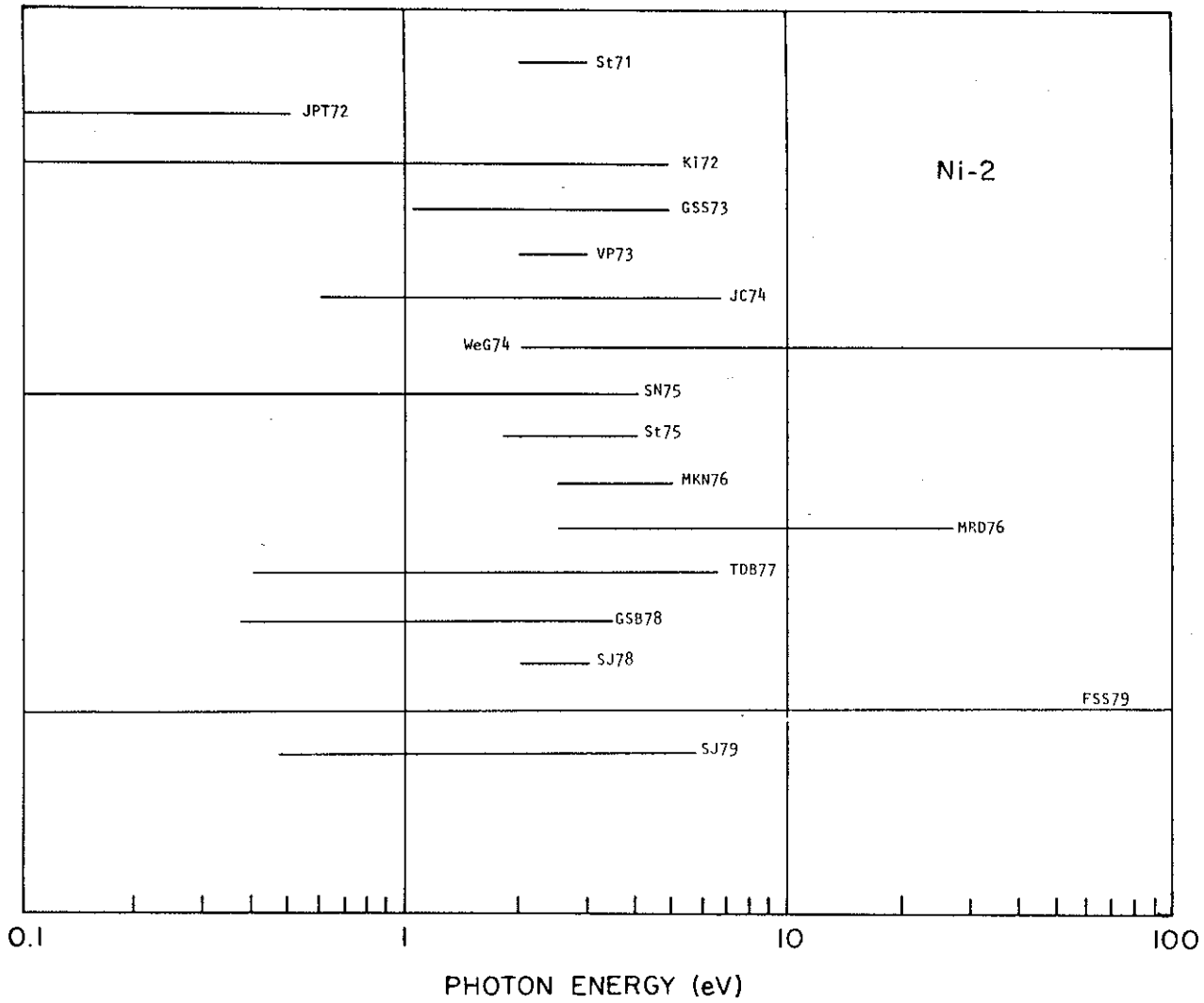

Fig. 32 Survey of available data for Ni

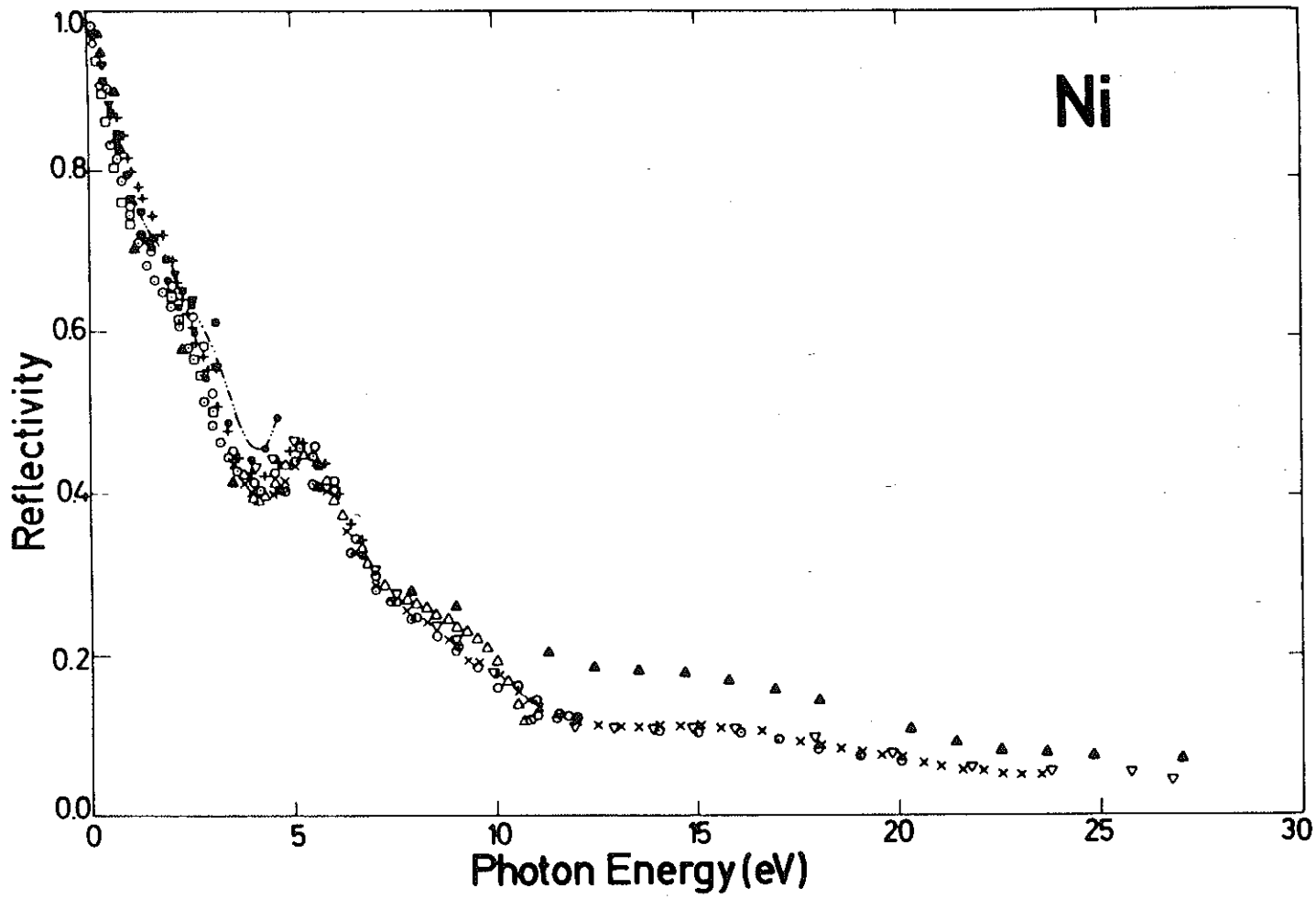

Fig. 33 Reflectivity of Ni. 000 LRW71; +++ JC74; ---- Ki72; ooo EP063; ΔΔΔ SS70; xxx VA69; ▽▽▽ MRD76; ▲▲▲ FSS79; ●●● GSS73; □□□ DM65; ■■■ GSB78; ▼▼▼ SN71; ◇◇◇ JPT72; ⊡⊡⊡ VP73.

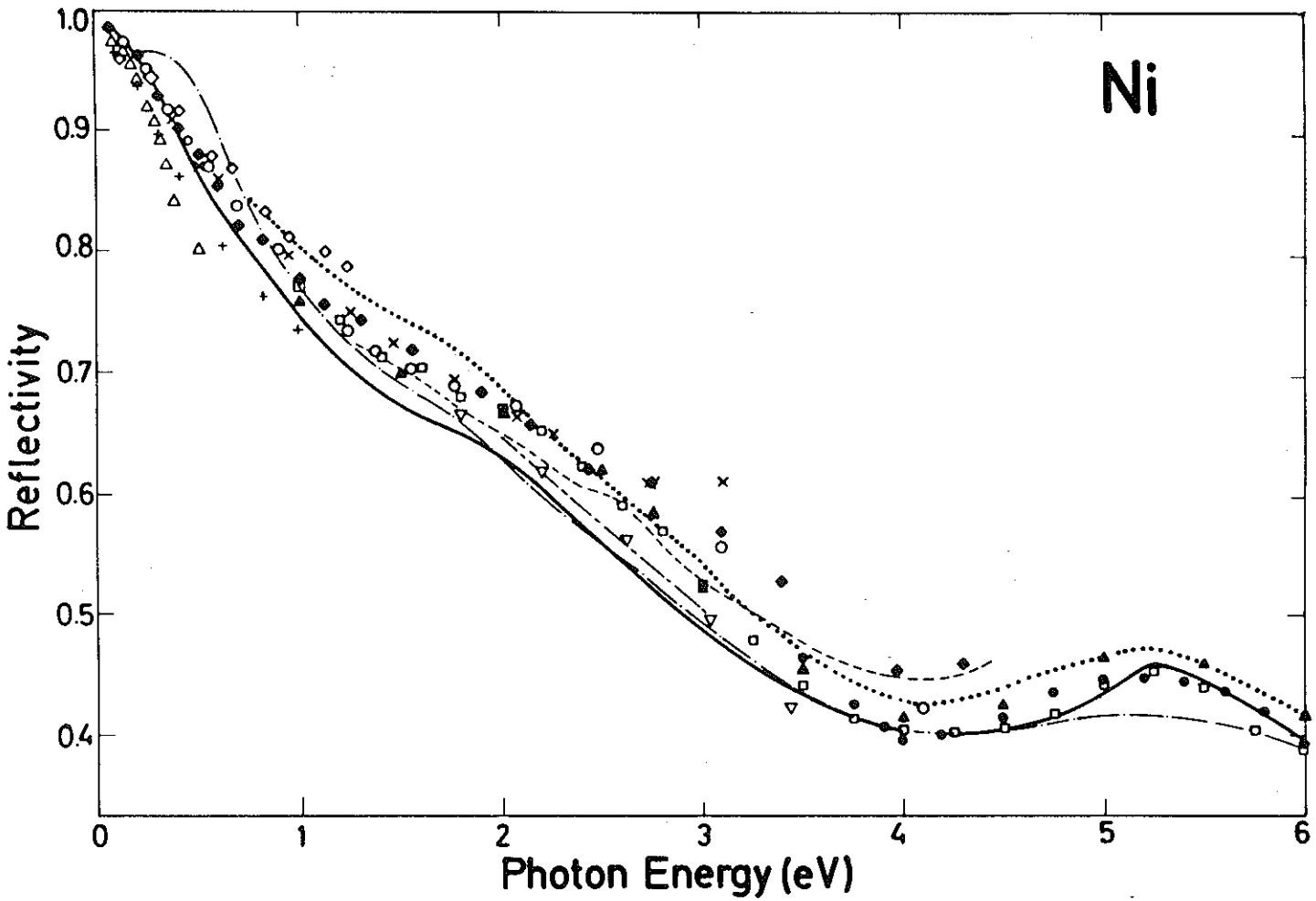

Fig. 34 Reflectivity of Ni for $0 \leq h\nu \leq 6$ eV. —— LRW71; ·-·-· FSS79; ΔΔΔ JPT72; □□□ VA69; ◆◆◆ Ki72; +++ DM65; - — - VP73; xxx GSB78; --- GSS73; ··· JC74; ooo SN71; ●●● SS70; ▲▲▲ EP063; ▽▽▽ St75; ◇◇◇ BG68.

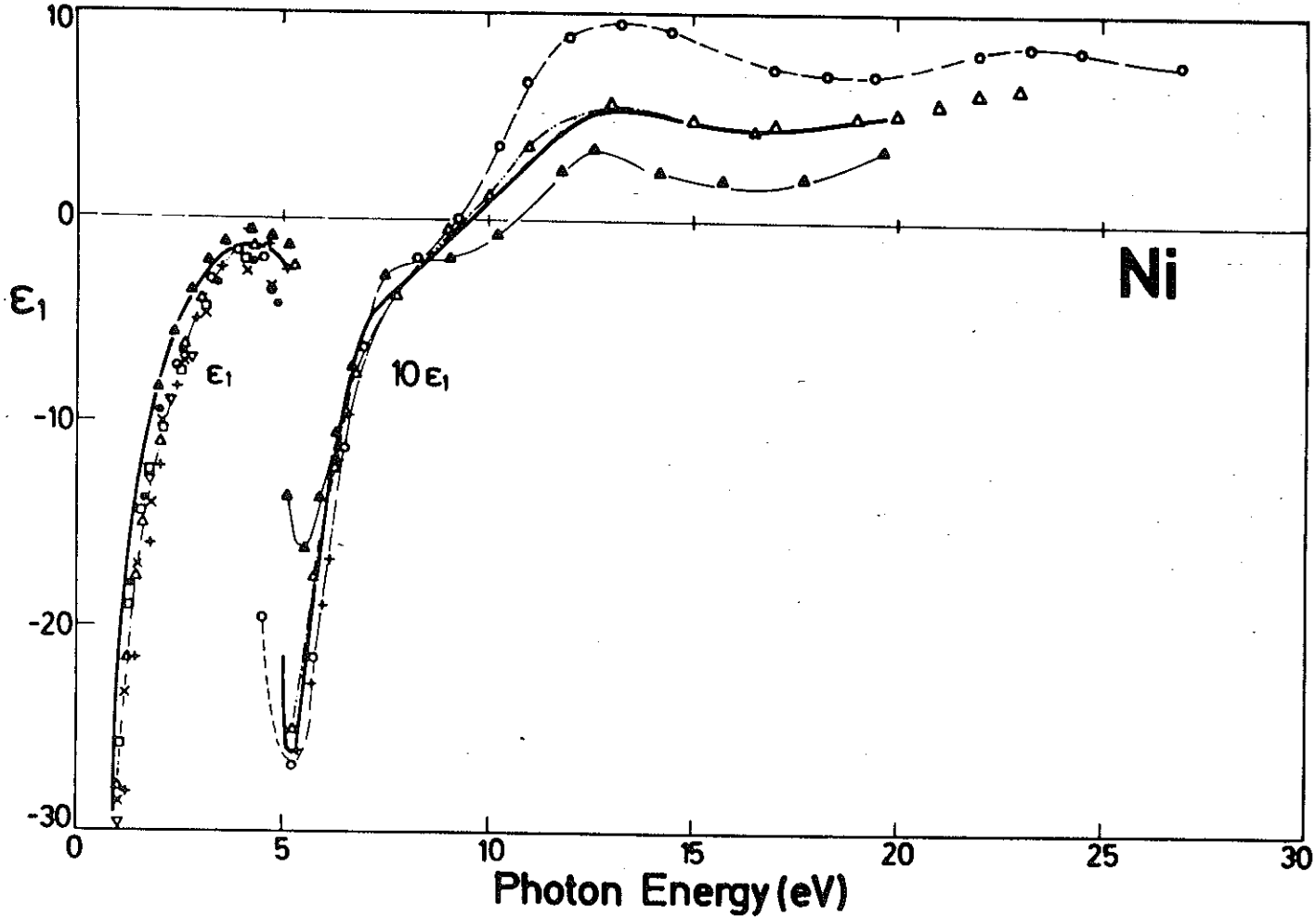

Fig. 35 ε_1 for Ni. —— LRW71; +++ JC74; xxx Ki72; ΔΔΔ VA69; ooo MRD76; ▲▲▲FSS79; ●●● GSS73; ▽▽▽ GSB78; □□□ SN71.

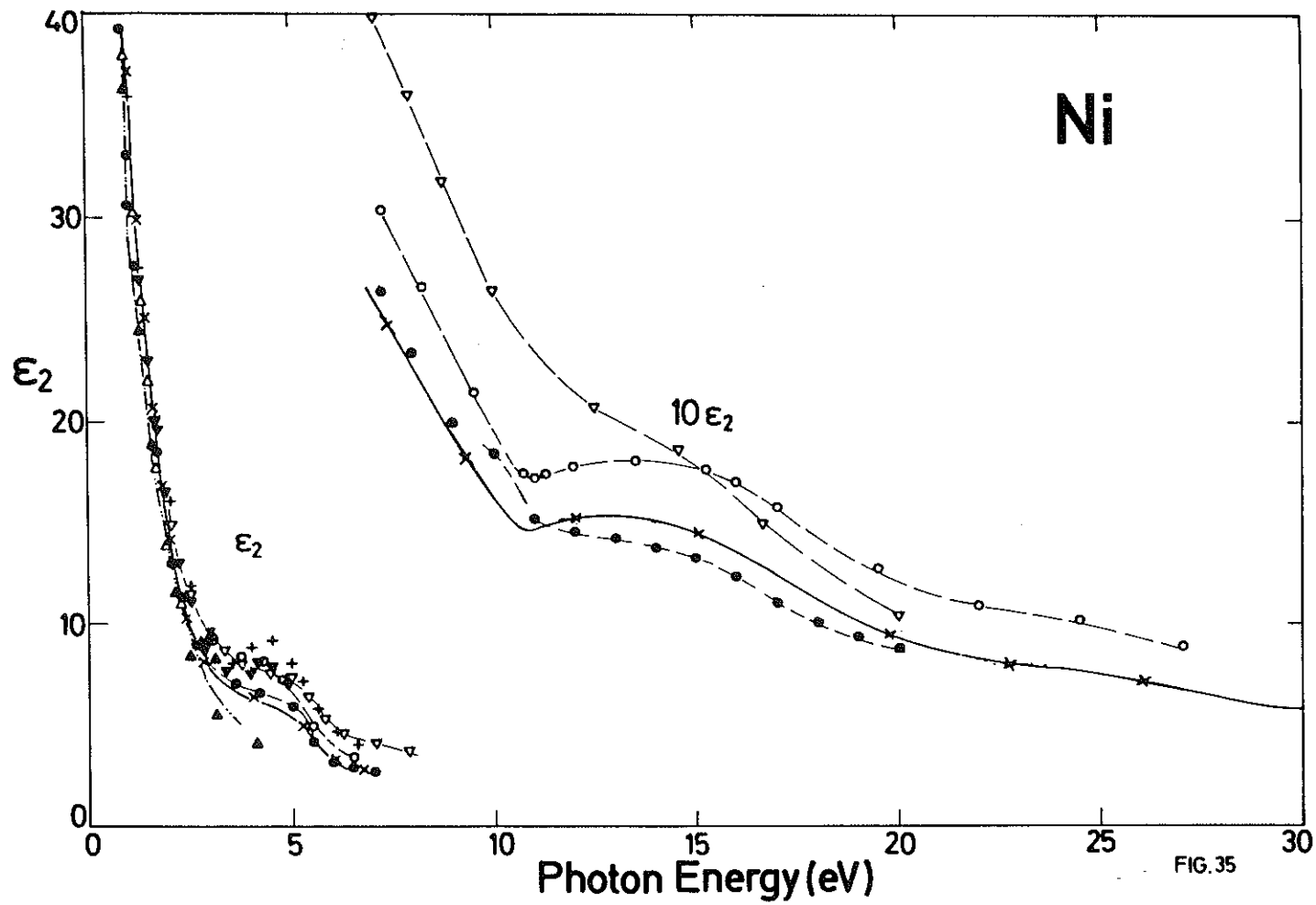

FIG. 35

Fig. 36 ε_2 for Ni. ●●● LRW71; +++ JC74; — ·· — Ki72; xxx VA69; ooo MRD76; ▽▽▽ FSS79; ▼▼▼ GSS73; ΔΔΔ GSB78; ▲▲▲SN71.

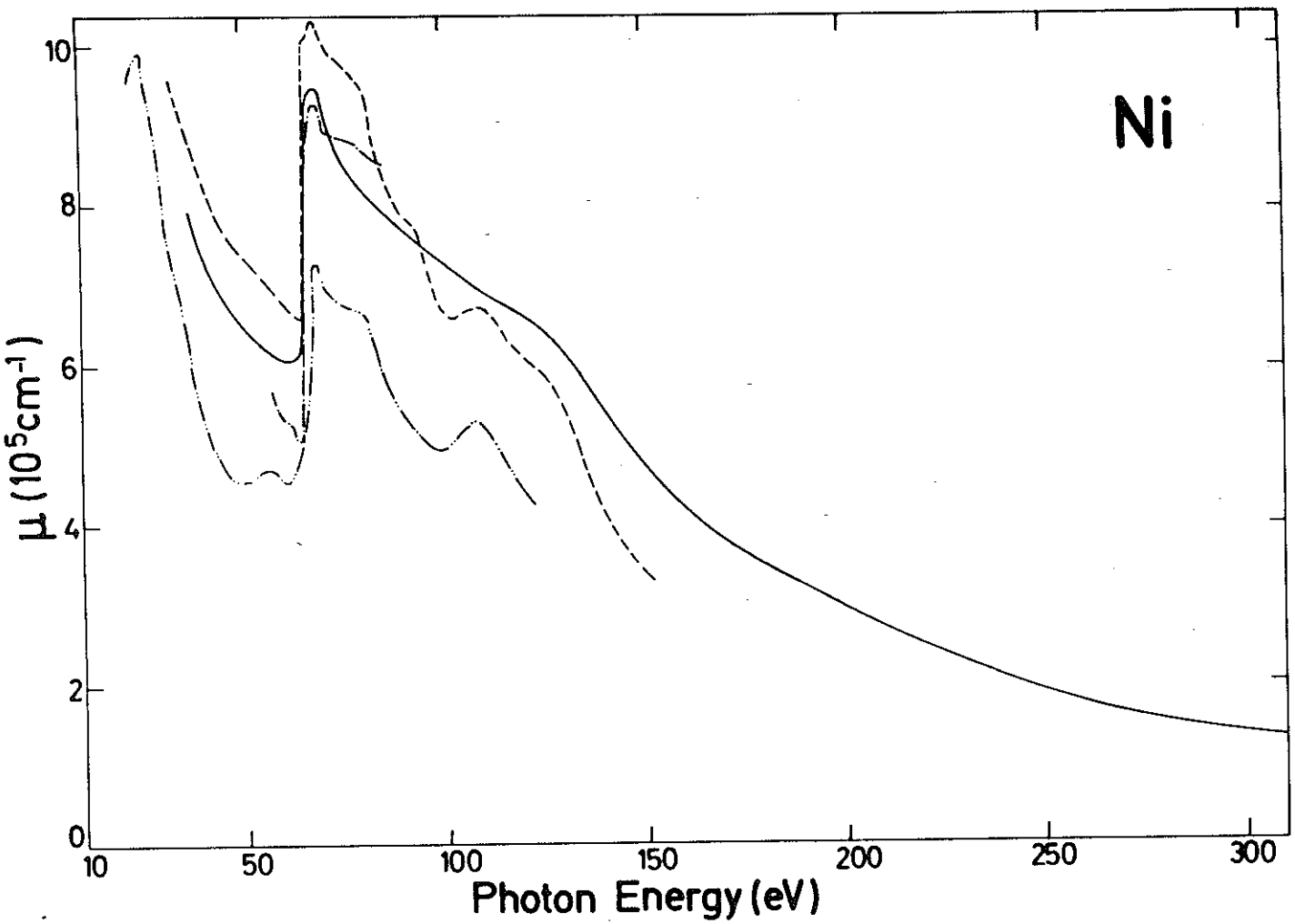

Fig. 37 Absorption coefficient for Ni. —— SHK69; -·- BGK71; --- FSS79; — ·· — WeG74.

Nickel

publication by D.W. Lynch, R. Rosei, and J.H. Weaver in Solid State Commun. 9, 2195 (1971) using VUV reflectance from literature based on the following tabulation

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
0.10	-2008.21	873.91	9.54	45.82	0.00	.983
0.11	-1679.25	678.58	8.12	41.76	0.00	.982
0.12	-1414.43	544.30	7.11	38.26	0.00	.981
0.13	-1204.89	454.96	6.44	35.31	0.00	.980
0.14	-1040.11	382.26	5.83	32.77	0.00	.979
0.15	-903.95	332.75	5.45	30.56	0.00	.978
0.16	-794.89	286.10	5.00	28.63	0.00	.977
0.17	-698.48	251.24	4.68	26.84	0.00	.975
0.18	-616.88	224.46	4.45	25.23	0.00	.973
0.19	-547.89	204.67	4.30	23.80	0.00	.971
0.20	-488.59	185.08	4.12	22.48	0.00	.969
0.21	-434.83	175.40	4.13	21.26	0.00	.965
0.22	-391.90	165.99	4.11	20.22	0.00	.962
0.23	-354.15	159.46	4.14	19.27	0.00	.958
0.24	-322.31	153.52	4.16	18.43	0.00	.955
0.25	-294.62	150.21	4.25	17.68	0.00	.950
0.26	-272.59	146.36	4.29	17.06	0.00	.946
0.27	-253.62	142.05	4.30	16.50	0.00	.943
0.28	-237.13	137.40	4.30	15.99	0.00	.939
0.29	-222.59	132.03	4.26	15.51	0.00	.937
0.30	-208.87	126.17	4.19	15.05	0.00	.934
0.31	-195.53	121.47	4.16	14.59	0.00	.930
0.32	-183.84	116.70	4.12	14.17	0.00	.927
0.33	-172.61	112.83	4.10	13.76	0.00	.924
0.34	-162.93	109.11	4.07	13.40	0.00	.921
0.35	-154.06	105.17	4.03	13.05	0.00	.918
0.36	-145.49	101.57	4.00	12.71	0.00	.914
0.37	-137.66	98.24	3.97	12.39	0.00	.911
0.38	-130.47	94.54	3.91	12.07	0.00	.908
0.39	-123.03	91.24	3.88	11.75	0.00	.904
0.40	-115.85	87.79	3.84	11.43	0.00	.900
0.45	-86.18	85.49	4.20	10.19	0.01	.872
0.50	-76.62	77.71	4.03	9.64	0.01	.864
0.55	-64.35	69.57	3.90	8.92	0.01	.849
0.60	-54.99	64.04	3.84	8.35	0.01	.835
0.65	-49.03	58.49	3.69	7.92	0.01	.826
0.70	-43.03	53.76	3.59	7.48	0.01	.813
0.75	-38.64	49.80	3.49	7.13	0.01	.803
0.80	-35.06	46.03	3.38	6.82	0.01	.794
0.85	-31.77	42.56	3.27	6.51	0.02	.785
0.90	-28.69	39.64	3.18	6.23	0.02	.774
0.95	-26.10	37.13	3.11	5.98	0.02	.764
1.00	-23.64	35.09	3.06	5.74	0.02	.753
1.05	-21.73	33.42	3.01	5.55	0.02	.743
1.10	-20.16	31.96	2.97	5.38	0.02	.734
1.15	-19.02	30.50	2.91	5.24	0.02	.728
1.20	-17.89	29.05	2.85	5.10	0.02	.721
1.25	-16.84	27.77	2.80	4.97	0.03	.714
1.30	-16.00	26.57	2.74	4.85	0.03	.708

Ni

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
1.35	-15.15	25.47	2.69	4.73	0.03	.701
1.40	-14.42	24.55	2.65	4.63	0.03	.695
1.45	-13.99	23.62	2.59	4.55	0.03	.692
1.50	-13.52	22.63	2.53	4.47	0.03	.688
1.55	-13.02	21.72	2.48	4.38	0.03	.683
1.60	-12.65	20.92	2.43	4.31	0.04	.679
1.65	-12.45	20.07	2.36	4.25	0.04	.678
1.70	-12.27	19.06	2.28	4.18	0.04	.677
1.75	-11.87	18.05	2.21	4.09	0.04	.673
1.80	-11.48	17.11	2.14	4.01	0.04	.670
1.85	-10.99	16.24	2.08	3.91	0.04	.665
1.90	-10.51	15.47	2.02	3.82	0.04	.659
1.95	-10.06	14.77	1.98	3.74	0.05	.654
2.00	-9.65	14.07	1.92	3.65	0.05	.649
2.10	-8.67	12.91	1.85	3.48	0.05	.634
2.20	-7.85	11.96	1.80	3.33	0.06	.620
2.30	-7.10	11.15	1.75	3.19	0.06	.605
2.40	-6.41	10.44	1.71	3.06	0.07	.590
2.50	-5.80	9.80	1.67	2.93	0.08	.575
2.60	-5.15	9.30	1.65	2.81	0.08	.557
2.70	-4.65	8.87	1.64	2.71	0.09	.542
2.80	-4.17	8.48	1.63	2.61	0.10	.525
2.90	-3.72	8.16	1.62	2.52	0.10	.509
3.00	-3.36	7.87	1.61	2.44	0.11	.495
3.10	-2.98	7.61	1.61	2.36	0.11	.480
3.20	-2.67	7.40	1.61	2.30	0.12	.467
3.30	-2.39	7.20	1.61	2.23	0.13	.454
3.40	-2.11	7.01	1.62	2.17	0.13	.441
3.50	-1.82	6.87	1.63	2.11	0.14	.428
3.60	-1.57	6.78	1.64	2.07	0.14	.416
3.70	-1.32	6.73	1.66	2.02	0.14	.405
3.80	-1.12	6.74	1.69	1.99	0.14	.397
3.90	-0.99	6.80	1.72	1.98	0.14	.393
4.00	-0.93	6.88	1.73	1.98	0.14	.392
4.10	-0.95	6.95	1.74	2.00	0.14	.394
4.20	-0.99	6.99	1.74	2.01	0.14	.396
4.30	-1.12	7.04	1.73	2.03	0.14	.402
4.40	-1.31	7.02	1.71	2.06	0.14	.409
4.50	-1.49	6.94	1.67	2.07	0.14	.415
4.60	-1.69	6.82	1.63	2.09	0.14	.421
4.70	-1.90	6.66	1.59	2.10	0.14	.428
4.80	-2.09	6.45	1.53	2.11	0.14	.435
4.90	-2.30	6.19	1.47	2.11	0.14	.443
5.00	-2.44	5.85	1.40	2.10	0.15	.449
5.10	-2.50	5.50	1.33	2.07	0.15	.451
5.20	-2.54	5.16	1.27	2.04	0.16	.454
5.30	-2.51	4.80	1.21	1.99	0.16	.454
5.40	-2.41	4.49	1.16	1.94	0.17	.449
5.50	-2.29	4.22	1.12	1.88	0.18	.443
5.60	-2.16	3.99	1.09	1.83	0.19	.435
5.70	-2.04	3.78	1.06	1.78	0.20	.428
5.80	-1.90	3.59	1.04	1.73	0.22	.417
5.90	-1.75	3.43	1.02	1.67	0.23	.406
6.20	-1.36	3.09	1.00	1.54	0.27	.371
6.40	-1.11	2.94	1.01	1.46	0.30	.345
6.60	-0.93	2.84	1.01	1.40	0.32	.325
6.80	-0.78	2.74	1.02	1.35	0.34	.308

Ni

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
7.00	-0.63	2.68	1.03	1.30	0.35	.291
7.20	-0.56	2.63	1.03	1.27	0.36	.282
7.40	-0.49	2.56	1.03	1.24	0.38	.273
7.60	-0.43	2.48	1.02	1.22	0.39	.265
7.80	-0.37	2.40	1.01	1.18	0.41	.256
8.00	-0.31	2.33	1.01	1.15	0.42	.248
8.20	-0.27	2.27	1.00	1.13	0.43	.242
8.40	-0.24	2.19	0.99	1.11	0.45	.235
8.60	-0.19	2.11	0.98	1.08	0.47	.228
8.80	-0.15	2.03	0.97	1.05	0.49	.220
9.00	-0.10	1.96	0.97	1.01	0.51	.211
9.20	-0.05	1.89	0.96	0.99	0.53	.203
9.40	0.00	1.83	0.95	0.96	0.55	.194
9.60	0.04	1.76	0.95	0.93	0.57	.185
9.80	0.10	1.70	0.95	0.89	0.59	.175
10.00	0.14	1.64	0.95	0.87	0.61	.166
10.20	0.20	1.58	0.95	0.83	0.62	.155
10.40	0.26	1.52	0.95	0.80	0.64	.145
10.60	0.37	1.48	0.97	0.76	0.64	.129
10.80	0.43	1.48	0.99	0.75	0.62	.123
11.00	0.50	1.47	1.01	0.73	0.61	.115
11.25	0.56	1.49	1.04	0.72	0.59	.111
11.50	0.60	1.51	1.05	0.71	0.57	.109
11.75	0.62	1.52	1.07	0.71	0.56	.108
12.00	0.63	1.53	1.07	0.71	0.56	.108
12.25	0.64	1.53	1.07	0.71	0.56	.107
12.50	0.65	1.53	1.08	0.71	0.55	.106
12.75	0.65	1.53	1.08	0.71	0.55	.106
13.00	0.66	1.52	1.08	0.71	0.55	.105
13.25	0.66	1.52	1.08	0.71	0.55	.105
13.50	0.65	1.51	1.07	0.70	0.56	.105
13.75	0.65	1.51	1.07	0.70	0.56	.105
14.00	0.63	1.50	1.07	0.71	0.56	.106
14.25	0.62	1.49	1.06	0.70	0.57	.106
14.50	0.61	1.48	1.05	0.70	0.58	.106
14.75	0.59	1.47	1.04	0.70	0.59	.107
15.00	0.57	1.44	1.03	0.70	0.60	.107
15.25	0.56	1.41	1.02	0.69	0.61	.106
15.50	0.55	1.39	1.01	0.69	0.62	.105
15.75	0.54	1.36	1.00	0.68	0.63	.104
16.00	0.53	1.34	0.99	0.67	0.65	.103
16.50	0.51	1.29	0.98	0.66	0.67	.101
17.00	0.51	1.23	0.96	0.64	0.69	.098
17.50	0.49	1.18	0.94	0.63	0.72	.096
18.00	0.49	1.12	0.92	0.61	0.75	.092
18.50	0.49	1.06	0.91	0.58	0.77	.087
19.00	0.50	1.01	0.90	0.56	0.79	.082
19.50	0.51	0.96	0.90	0.54	0.81	.077
20.00	0.54	0.92	0.89	0.51	0.81	.071
20.50	0.55	0.88	0.89	0.49	0.81	.066
21.00	0.58	0.85	0.90	0.47	0.80	.061
21.50	0.61	0.83	0.91	0.46	0.78	.057
22.00	0.62	0.82	0.91	0.45	0.77	.055
22.50	0.63	0.81	0.91	0.44	0.77	.053
23.00	0.65	0.80	0.92	0.44	0.76	.051
23.50	0.64	0.80	0.91	0.44	0.77	.052
24.00	0.63	0.78	0.90	0.43	0.77	.051

Ni

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
24.50	0.62	0.77	0.90	0.43	0.79	.051
25.00	0.61	0.74	0.89	0.42	0.80	.050
26.00	0.62	0.69	0.88	0.39	0.81	.046
27.00	0.62	0.65	0.87	0.37	0.80	.042
28.00	0.63	0.62	0.87	0.35	0.80	.040
29.00	0.63	0.58	0.86	0.34	0.79	.037
30.00	0.64	0.55	0.86	0.32	0.77	.034
35.00	0.68	0.41	0.86	0.24	0.66	.022
40.00	0.71	0.31	0.87	0.18	0.51	.014
45.00	0.76	0.23	0.88	0.13	0.36	.008
50.00	0.83	0.18	0.92	0.10	0.25	.004
60.00	0.91	0.16	0.96	0.08	0.18	.002
65.00	0.95	0.17	0.98	0.09	0.18	.002
68.00	0.91	0.24	0.96	0.12	0.27	.004
70.00	0.88	0.20	0.94	0.11	0.25	.004
75.00	0.88	0.16	0.94	0.09	0.20	.003
80.00	0.88	0.14	0.94	0.07	0.17	.002
90.00	0.89	0.11	0.94	0.06	0.13	.002