Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks U
				Film	X-tal	Bulk	Prep		
WG74	50-140	Trans		x				μ	energy loss spectroscopy
CDG78	70-160	Trans		x				μ (absorption measurements); KK: μ (energy loss spectroscopy), $Im(\varepsilon^{-1})$	optical absorption measurements with synchrotron radiation; fast electron energy loss spectroscopy with KK analysis
CGW80	2-150	Trans		x				μ	fast electron energy loss spectroscopy
Wea80	0.15-2	Refl	4.2			x	EP	A	absorptivity measured by calorimetry on α-U
We Unpl	40-200	Trans		x				μ	soft x-ray absorption measurements

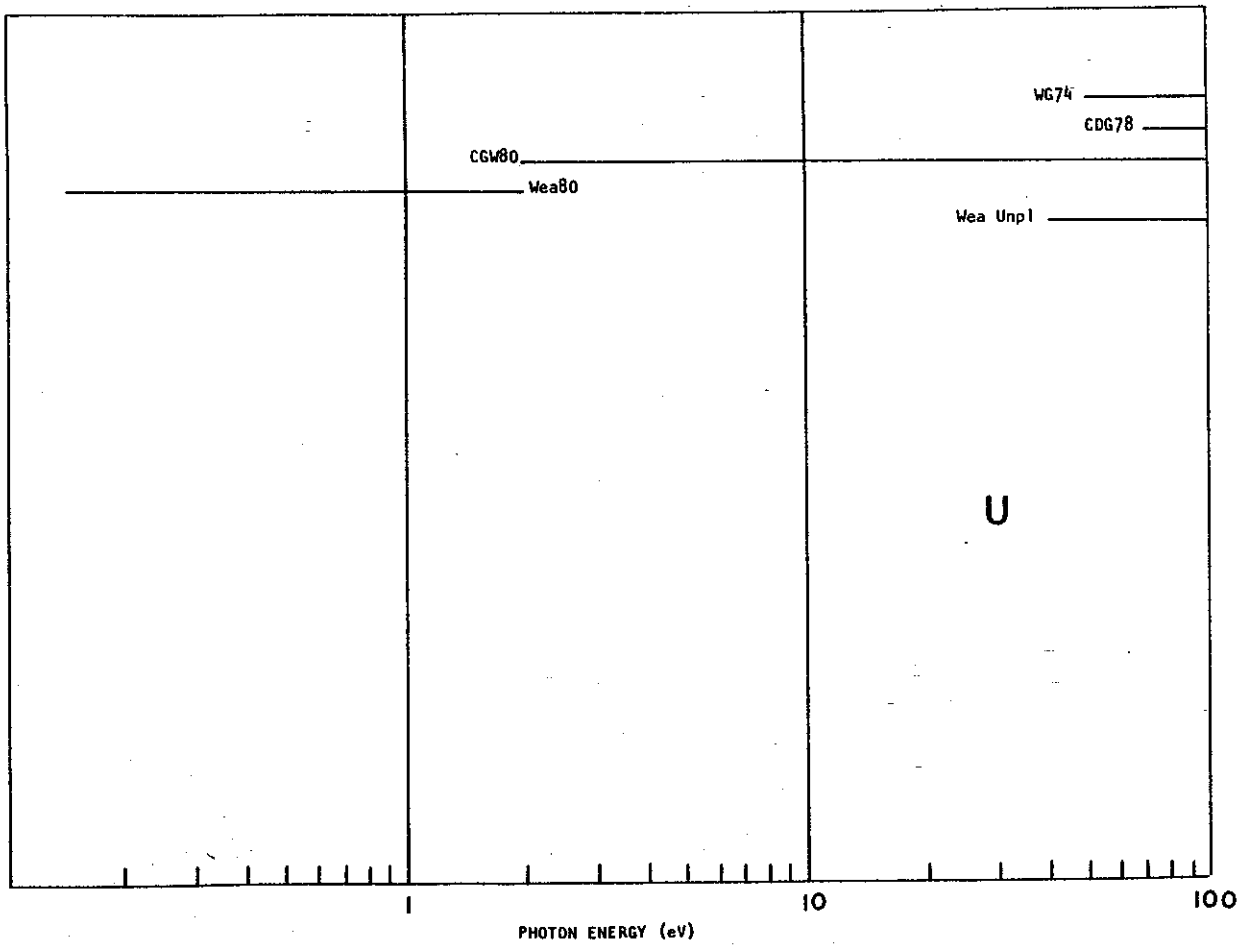

Fig. 98 Survey of available data on α-U.

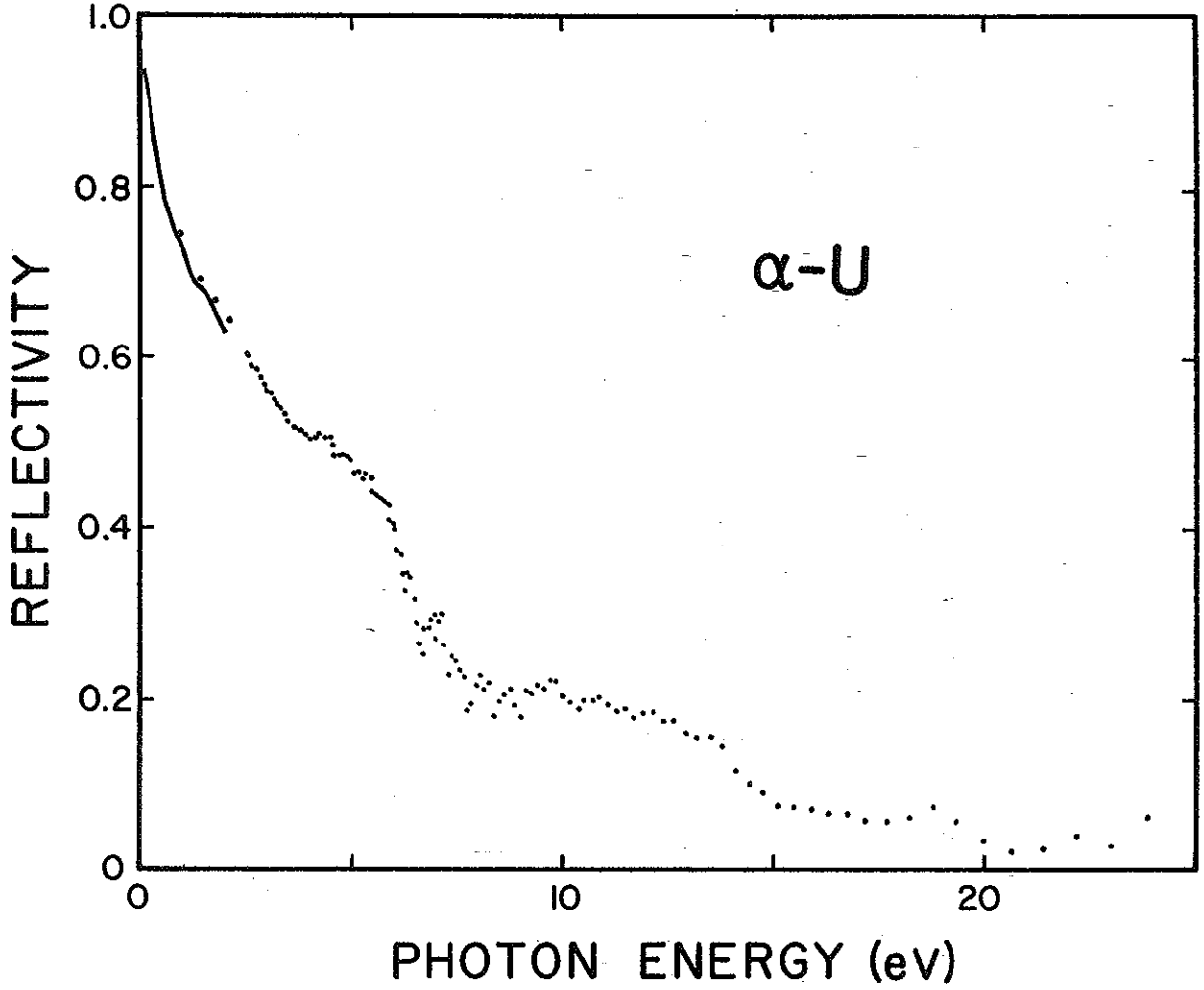

Fig. 99 Reflectivity for α-U. Polycrystalline results by Wea80 (——) and FNi80 (···).

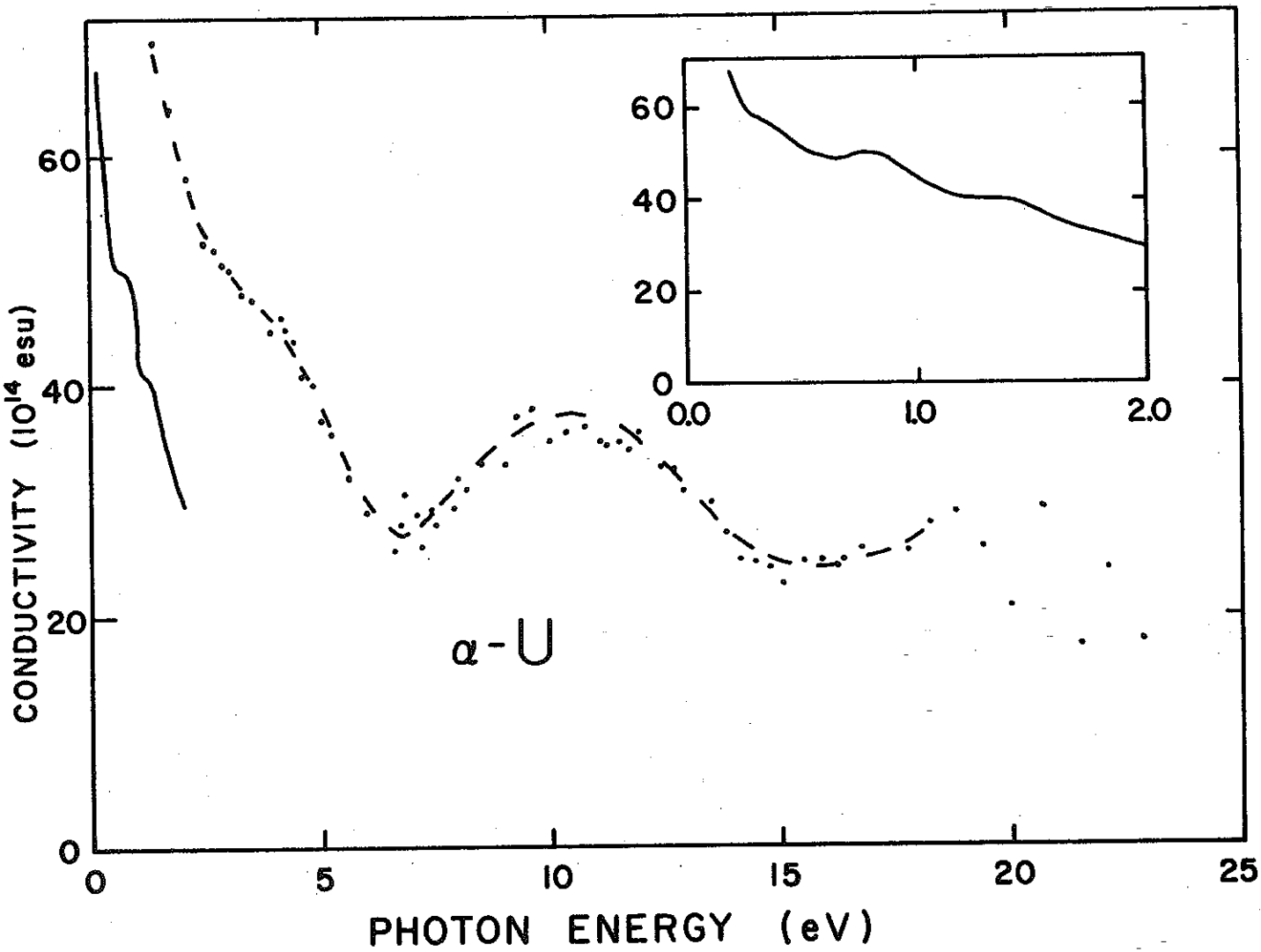

Fig. 100 Optical conductivity for α-U. Polycrystalline results by Wea80 (——) and FNi80 (···).

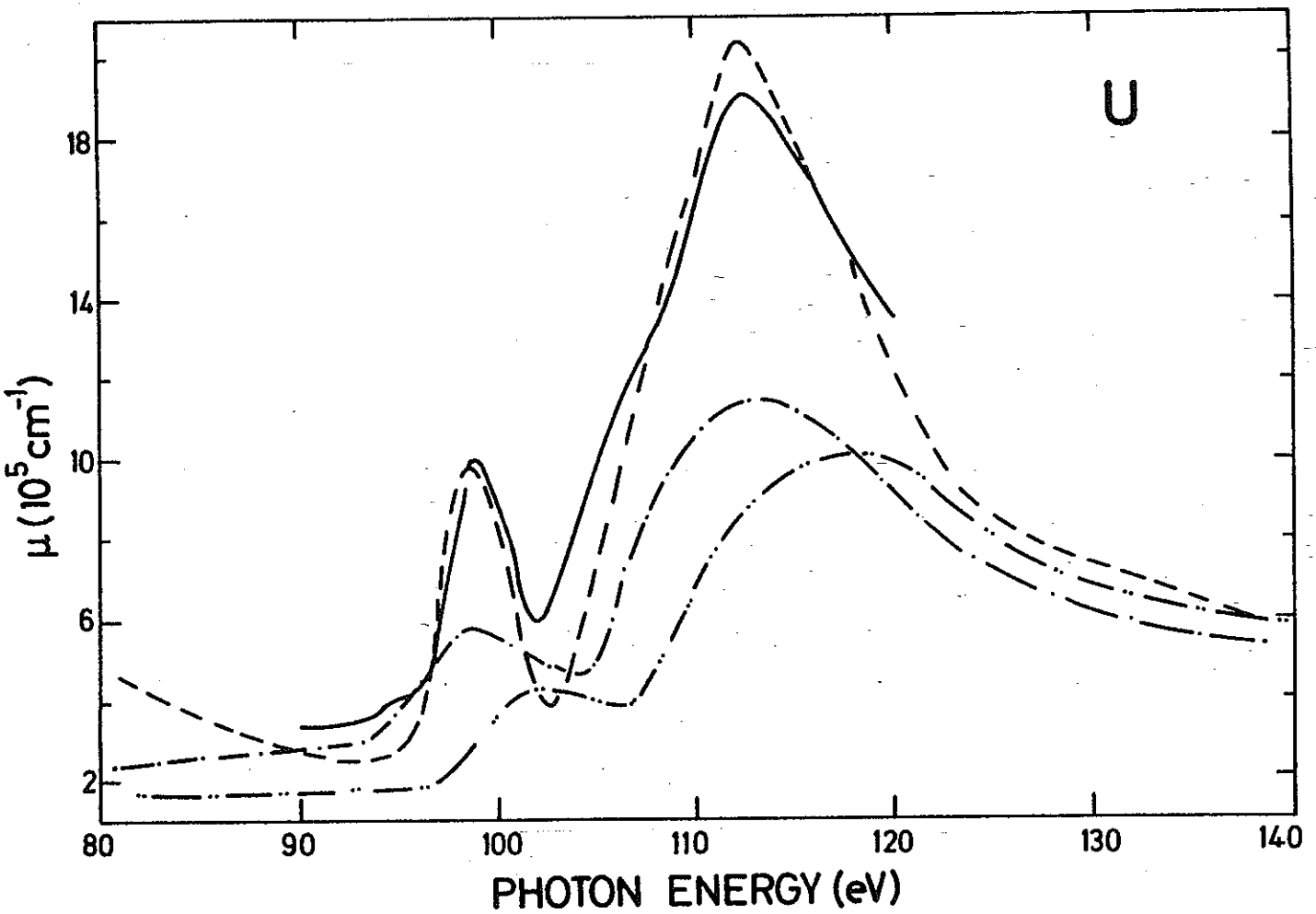

Fig. 101 Absorption coefficient for α-U for 80 ≤ hν ≤ 140 eV. Polycrystalline results by We Unpub (——) from soft x-ray absorption measurements; CDG78 from absorption measurements (– – –) and energy loss measurements (–·–); WG74 (–··–) from energy loss measurements.

α-Uranium

from J.H. Weaver, J. Opt. Soc. Am. 70, 1030 (1980); dielectric function computed by KK analysis based on measurements over a limited spectral range. See reflectance spectrum for range of greatest reliability

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
0.10	-383.90	803.70	15.92	25.24	0.00	.931
0.15	-241.40	434.00	11.30	19.21	0.00	.913
0.20	-164.60	279.50	8.94	15.64	0.00	.896
0.25	-113.90	201.10	7.66	13.13	0.00	.876
0.30	-82.60	159.50	6.96	11.45	0.00	.857
0.35	-65.80	133.80	6.45	10.37	0.01	.842
0.40	-55.80	113.20	5.93	9.54	0.01	.829
0.45	-47.10	97.50	5.53	8.81	0.01	.816
0.50	-40.80	85.30	5.18	8.23	0.01	.804
0.55	-35.10	75.70	4.92	7.70	0.01	.791
0.60	-30.70	68.50	4.71	7.27	0.01	.780
0.65	-27.30	62.70	4.53	6.92	0.01	.769
0.70	-24.70	58.20	4.39	6.63	0.01	.760
0.75	-22.90	54.70	4.27	6.41	0.02	.752
0.80	-22.40	51.50	4.11	6.27	0.02	.749
0.85	-22.40	47.90	3.90	6.14	0.02	.747
0.90	-22.10	43.90	3.68	5.97	0.02	.744
0.95	-21.30	40.20	3.48	5.78	0.02	.740
1.00	-20.40	36.60	3.28	5.58	0.02	.735
1.05	-18.90	33.60	3.13	5.36	0.02	.726
1.10	-17.40	31.30	3.03	5.16	0.02	.717
1.15	-16.20	29.60	2.96	5.00	0.03	.709
1.20	-15.20	28.10	2.89	4.86	0.03	.701
1.25	-14.40	26.80	2.83	4.73	0.03	.695
1.30	-13.90	25.60	2.76	4.64	0.03	.690
1.35	-13.50	24.40	2.68	4.55	0.03	.687
1.40	-13.30	23.30	2.60	4.48	0.03	.685
1.45	-13.00	22.00	2.51	4.39	0.03	.683
1.50	-12.80	20.70	2.40	4.31	0.03	.681
1.55	-12.40	19.50	2.31	4.21	0.04	.678
1.60	-11.90	18.40	2.24	4.11	0.04	.673
1.65	-11.40	17.40	2.17	4.01	0.04	.668
1.70	-11.00	16.40	2.09	3.92	0.04	.664
1.75	-10.50	15.60	2.04	3.83	0.04	.659
1.80	-10.10	14.80	1.98	3.74	0.05	.654
1.85	-9.63	14.10	1.93	3.65	0.05	.648
1.90	-9.22	13.50	1.89	3.58	0.05	.643
1.95	-8.85	12.70	1.82	3.49	0.05	.638
2.00	-8.50	12.30	1.80	3.42	0.06	.632

α-Uranium

from A. Fäldt and P.O. Nilsson, J. Phys. F 10, 2573 (1980)

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
0.95	-14.49	71.17	5.39	6.60	0.01	.744
1.41	-11.39	41.00	3.95	5.19	0.02	.693
1.77	-10.82	29.91	3.24	4.62	0.03	.670
2.07	-9.36	23.16	2.80	4.14	0.04	.646
2.48	-6.91	17.47	2.44	3.58	0.05	.605
2.64	-6.11	16.24	2.37	3.42	0.05	.589
2.70	-6.07	15.81	2.33	3.39	0.06	.587
2.76	-5.99	15.22	2.28	3.34	0.06	.584
2.82	-5.62	14.76	2.25	3.27	0.06	.577
2.88	-5.63	14.35	2.21	3.24	0.06	.575
2.95	-5.27	13.75	2.17	3.16	0.06	.567
3.02	-4.99	13.40	2.16	3.11	0.07	.560
3.10	-4.85	12.98	2.12	3.06	0.07	.556
3.18	-4.60	12.54	2.09	3.00	0.07	.549
3.22	-4.49	12.37	2.08	2.97	0.07	.545
3.26	-4.48	12.20	2.06	2.96	0.07	.544
3.31	-4.28	11.95	2.05	2.91	0.07	.539
3.35	-4.26	11.78	2.03	2.90	0.08	.538
3.40	-4.08	11.54	2.02	2.86	0.08	.533
3.44	-4.01	11.41	2.01	2.84	0.08	.530
3.50	-3.86	11.20	2.00	2.80	0.08	.525
3.60	-3.67	10.94	1.98	2.76	0.08	.519
3.65	-3.55	10.88	1.99	2.74	0.08	.516
3.67	-3.54	10.89	1.99	2.74	0.08	.516
3.71	-3.46	10.87	1.99	2.73	0.08	.514
3.76	-3.35	11.50	2.08	2.77	0.08	.515
3.87	-3.55	8.15	1.63	2.49	0.10	.503
3.92	-3.62	9.53	1.81	2.63	0.09	.511
3.97	-3.32	9.41	1.82	2.58	0.09	.501
4.03	-3.44	9.52	1.83	2.60	0.09	.505
4.08	-3.56	9.35	1.80	2.61	0.09	.508
4.13	-3.52	9.21	1.78	2.59	0.09	.506
4.19	-3.69	9.03	1.74	2.59	0.09	.511
4.22	-3.72	8.83	1.71	2.58	0.10	.511
4.28	-3.51	8.59	1.70	2.53	0.10	.503
4.34	-3.61	8.47	1.67	2.53	0.10	.506
4.40	-3.64	8.23	1.64	2.51	0.10	.507
4.43	-3.73	8.09	1.61	2.51	0.10	.510
4.46	-3.59	7.94	1.60	2.48	0.10	.504
4.49	-3.64	7.63	1.55	2.46	0.11	.506
4.53	-3.36	7.43	1.55	2.40	0.11	.495
4.56	-3.24	7.43	1.56	2.38	0.11	.489
4.59	-3.13	7.43	1.57	2.37	0.11	.485
4.63	-3.30	7.45	1.56	2.39	0.11	.492
4.66	-3.35	7.25	1.52	2.38	0.11	.494
4.70	-3.18	7.13	1.52	2.34	0.12	.486
4.73	-3.30	7.20	1.52	2.37	0.11	.492

α-U

Energy (eV)	ε_1	ε_2	n	k	Im(-1/ε)	R(ϕ=0)
4.77	-3.16	6.93	1.49	2.32	0.12	.486
4.81	-3.16	6.89	1.49	2.32	0.12	.485
4.84	-3.19	6.77	1.46	2.31	0.12	.497
4.88	-3.11	6.63	1.45	2.28	0.12	.483
4.92	-3.18	6.46	1.42	2.28	0.12	.486
4.96	-3.02	6.25	1.40	2.23	0.13	.479
5.00	-2.86	6.19	1.41	2.20	0.13	.471
5.04	-2.75	6.24	1.43	2.19	0.13	.465
5.08	-2.90	6.20	1.40	2.21	0.13	.473
5.12	-2.94	6.02	1.37	2.20	0.13	.475
5.17	-2.79	5.84	1.36	2.15	0.14	.467
5.21	-2.79	5.70	1.33	2.14	0.14	.468
5.25	-2.63	5.64	1.34	2.10	0.15	.459
5.30	-2.69	5.62	1.33	2.11	0.14	.462
5.34	-2.76	5.47	1.30	2.11	0.15	.466
5.44	-2.64	5.00	1.23	2.04	0.16	.461
5.49	-2.35	4.88	1.24	1.97	0.17	.443
5.54	-2.27	4.91	1.25	1.96	0.17	.438
5.59	-2.31	4.80	1.23	1.95	0.17	.441
5.64	-2.13	4.75	1.24	1.91	0.18	.429
5.69	-2.23	4.66	1.21	1.92	0.17	.436
5.74	-2.19	4.52	1.19	1.90	0.18	.434
5.79	-2.17	4.38	1.17	1.88	0.18	.433
5.85	-2.11	4.11	1.12	1.84	0.19	.430
5.90	-1.88	4.01	1.13	1.78	0.20	.412
5.96	-1.83	3.89	1.11	1.75	0.21	.409
6.02	-1.69	3.71	1.09	1.70	0.22	.398
6.08	-1.40	3.66	1.12	1.63	0.24	.373
6.14	-1.37	3.56	1.10	1.61	0.24	.371
6.20	-1.12	3.47	1.12	1.54	0.26	.347
6.26	-0.88	3.56	1.18	1.51	0.26	.328
6.33	-1.05	3.69	1.18	1.56	0.25	.344
6.39	-1.07	3.44	1.12	1.53	0.27	.343
6.46	-0.82	3.22	1.12	1.44	0.29	.318
6.53	-0.51	3.15	1.16	1.36	0.31	.289
6.60	-0.20	3.21	1.23	1.31	0.31	.264
6.67	0.07	3.47	1.33	1.30	0.29	.254
6.74	-0.22	3.81	1.34	1.42	0.26	.285
6.81	-0.27	3.69	1.31	1.41	0.27	.284
6.89	-0.42	3.61	1.27	1.42	0.27	.293
6.97	-0.20	3.51	1.29	1.36	0.28	.274
7.05	-0.37	3.65	1.29	1.42	0.27	.290
7.13	-0.61	3.36	1.18	1.42	0.29	.302
7.21	-0.30	2.98	1.16	1.28	0.33	.265
7.29	0.14	3.00	1.25	1.20	0.33	.230
7.38	0.01	3.29	1.28	1.28	0.30	.251
7.47	-0.02	3.13	1.25	1.25	0.32	.247
7.56	0.09	3.02	1.25	1.21	0.33	.234
7.65	0.10	2.90	1.22	1.18	0.34	.229
7.75	0.56	2.76	1.30	1.06	0.35	.190
7.85	0.75	3.10	1.40	1.10	0.31	.197
7.95	0.61	3.35	1.42	1.18	0.29	.217
8.05	0.38	3.30	1.36	1.21	0.30	.227
8.16	0.49	3.12	1.35	1.16	0.31	.213
8.27	0.31	3.03	1.29	1.17	0.33	.219
8.38	0.75	2.81	1.35	1.04	0.33	.182
8.49	0.83	3.18	1.44	1.11	0.29	.198

α-U

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
8.61	0.69	3.26	1.42	1.15	0.29	.208
8.73	0.52	3.18	1.37	1.16	0.31	.213
8.86	0.66	2.94	1.36	1.08	0.32	.194
8.99	1.02	3.01	1.45	1.04	0.30	.181
9.12	0.81	3.42	1.47	1.16	0.28	.211
9.25	0.74	3.29	1.43	1.15	0.29	.208
9.39	0.60	3.34	1.41	1.18	0.29	.217
9.54	0.57	3.23	1.39	1.16	0.30	.213
9.69	0.43	3.25	1.36	1.19	0.30	.222
9.84	0.31	3.07	1.30	1.18	0.32	.221
10.00	0.42	2.87	1.29	1.11	0.34	.205
10.16	0.50	2.84	1.30	1.09	0.34	.198
10.33	0.55	2.86	1.32	1.09	0.34	.195
10.51	0.50	2.89	1.31	1.10	0.34	.200
10.69	0.45	2.84	1.29	1.10	0.34	.201
10.88	0.37	2.77	1.26	1.10	0.36	.203
11.07	0.37	2.63	1.23	1.07	0.37	.196
11.27	0.43	2.56	1.23	1.04	0.38	.188
11.48	0.37	2.54	1.21	1.05	0.39	.191
11.70	0.45	2.43	1.21	1.01	0.40	.179
11.92	0.39	2.47	1.20	1.03	0.39	.186
12.16	0.29	2.35	1.15	1.02	0.42	.187
12.40	0.33	2.21	1.13	0.98	0.44	.177
12.65	0.29	2.13	1.10	0.97	0.46	.176
12.92	0.34	1.99	1.09	0.92	0.49	.163
13.19	0.37	1.93	1.08	0.89	0.50	.157
13.48	0.31	1.84	1.04	0.88	0.53	.157
13.78	0.31	1.63	0.99	0.82	0.59	.145
14.09	0.48	1.46	1.00	0.73	0.62	.117
14.42	0.60	1.42	1.03	0.69	0.60	.103
14.76	0.64	1.36	1.04	0.66	0.60	.094
15.12	0.80	1.26	1.07	0.59	0.56	.076
15.50	0.89	1.32	1.11	0.59	0.52	.075
15.90	0.92	1.31	1.12	0.58	0.51	.073
16.32	0.97	1.28	1.13	0.56	0.50	.069
16.76	0.98	1.28	1.14	0.56	0.49	.068
17.22	1.04	1.19	1.14	0.52	0.48	.060
17.71	1.13	1.20	1.18	0.51	0.44	.058
18.24	1.16	1.28	1.20	0.53	0.43	.063
18.79	0.96	1.35	1.15	0.59	0.49	.075
19.37	0.88	1.09	1.07	0.51	0.56	.058
20.00	1.01	0.87	1.08	0.40	0.49	.037
20.67	1.15	0.80	1.13	0.35	0.41	.030
21.38	1.35	0.67	1.19	0.28	0.30	.024
22.14	1.51	0.91	1.28	0.36	0.29	.039
22.96	1.56	0.65	1.27	0.26	0.23	.027
23.85	1.94	1.25	1.46	0.43	0.23	.063