Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks Gd
				Film	X-tal	Bulk	Prep		
BSY66	1-11.8	Refl		x			In	R	uhv films
Sch66	0.3-4	Trans, Refl		x				σ	author confirms in private communication with HC (of HC69) that $\sigma(\omega)$ is too high
FZG67	137-146			x				μ	absorption measurements
ZFG67	~50-560			x				μ	absorption measurements
HC69	0.5-5.6	Refl	105, 293	x				σ,T	
KN70	1.13-3.96	Ellips				x	MP	n,k,σ,ε_1,Im(ε^{-1})	measurements taken in N_2 gas
Dan71	2-50			x				Im(ε^{-1}),ε_1,ε_2,R,μ	energy loss spectroscopy
KN71	0.2-1.2	Ellips	80-460			x		σ	temperature varied
KnN71	0.06-1.24	Ellips	80, 293, 460			x		n,k	
Pet72	1.55-6.2	Trans, Refl		x				T,R,σ	
TRZ72	3-48					x		Im(ε^{-1})	energy loss spectroscopy
ErS73		Refl		x			In		magneto-optic Kerr rotation and ellipticity used to calculate magnetic contribution to the conductivity tensor
TC73	138-170			x				μ	energy loss spectroscopy
EBF74	1.5-5.5	Ellips		x			In	σ	uhv films
MJT74	1.8-3.1	Refl		x			In	R,n,k,σ	uhv films
KT75	0.35-2.5	Ellips	20-300	x				σ,ε_1	
Kun75	50-550			x				μ	absorption measurements with synchrotron radiation

Authors	Energy Range (eV)	Technique	Temperature (K) RT unless specified	Sample				Data Presentation	Remarks Gd
				Film	X-tal	Bulk	Prep		
WL75	0.2-4.4	Refl	4.2		x		EP	A; KK: σ for E⊥c and E∥c	plotted results extended to 5 eV with reflectivity measurements taken at room temperature; examined optical anisotropy
CGT76		Trans		x				$\mathrm{Im}(\varepsilon^{-1})$	energy loss spectroscopy
EF76	4-12			x			In	μ	absorption measurements
Mye76	0.5-5	Ellips	10, 100, 295	x				σ	uhv films
KN77									review paper
Liu77									review paper covering band structure, optical and photoemission properties
MPF77	0.5-5	Refl	10-300	x				R; n,k	
PMF77	1.5-5	Ellips	10-300	x				n,k,σ,ε_1	temperature varied
GZN78	0.5-3.1	Ellips	77-293			x	MP	σ	temperature varied
Lyn78									review paper
CGW80	∿2-65			x				R,μ	fast electron energy loss spectroscopy
Loi Pvt	2-18	m-θ		x			In	KK: $\varepsilon_1,\varepsilon_2,\sigma,\mu,R$	
Nil Pvt	13-25	Trans		x				T	synchrotron radiation

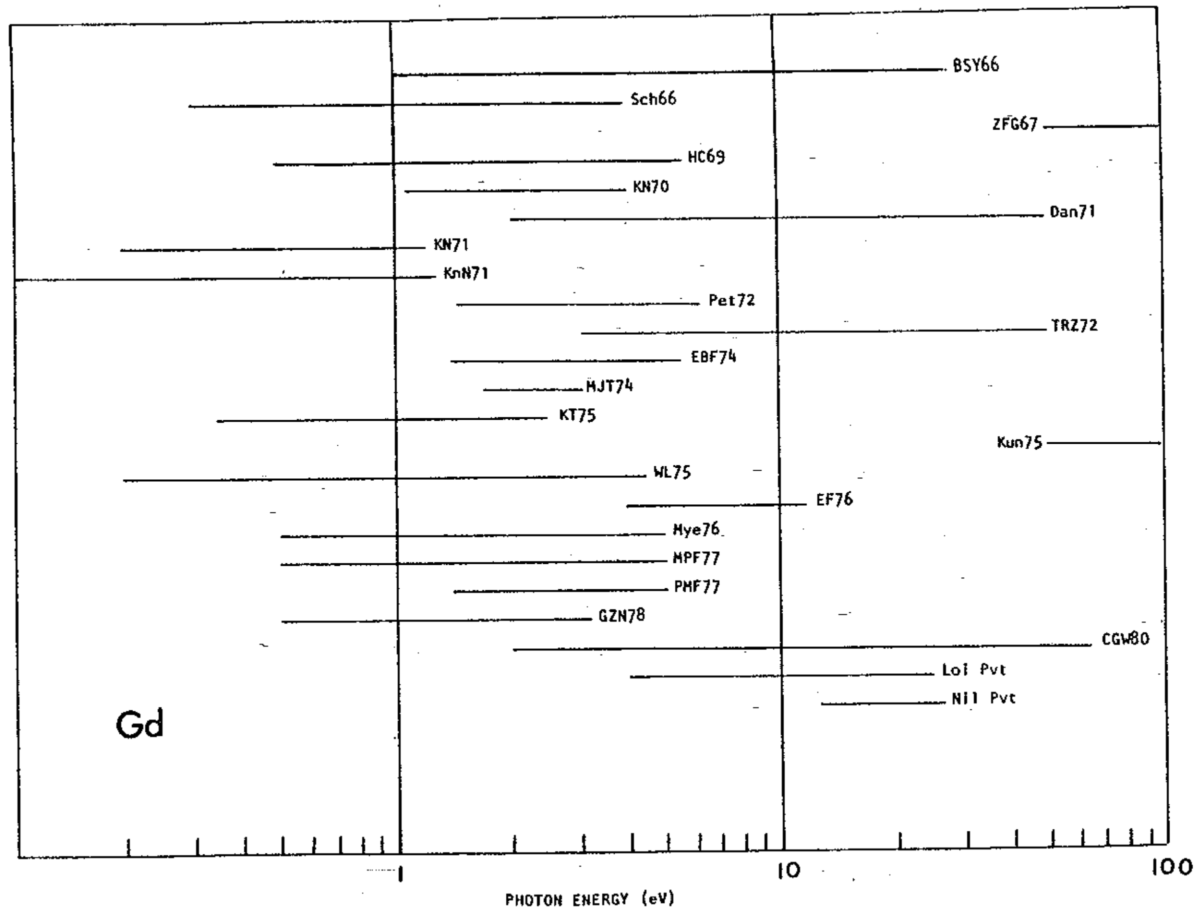

Fig. 56 Survey of available data on Gd.

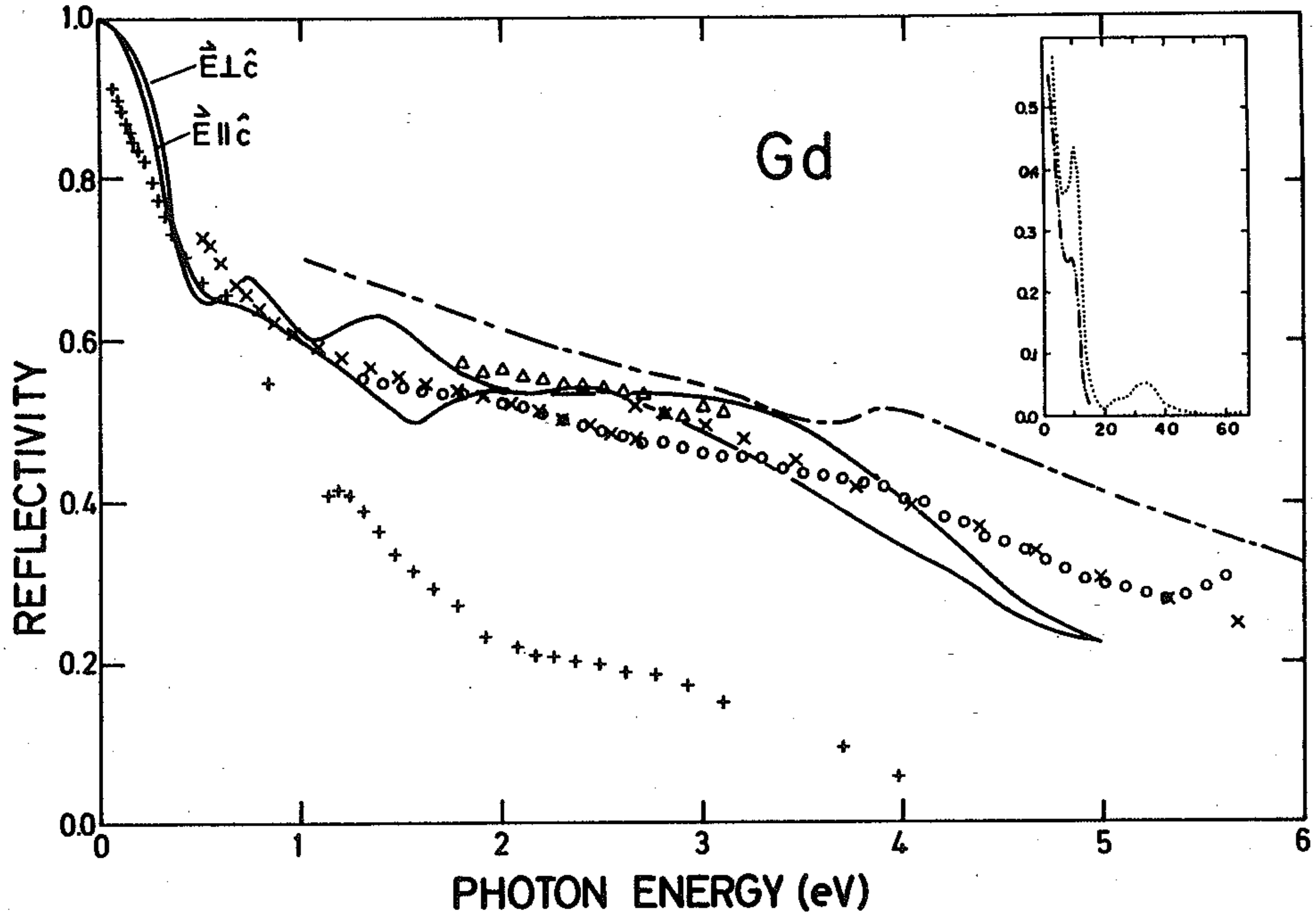

Fig. 57 Reflectivity of Gd. Single crystal results by WL75 (——) for $\vec{E}\parallel\hat{c}$ and $\vec{E}\perp\hat{c}$. Polycrystallline results by BSY66 (– – –); EBF74 (ooo); MJT74 (ΔΔΔ); KN70 and KN71 (+++); HC69 (xxx); and QLJ81 (—·—). Results by CGW80 (···) were derived from electron energy loss measurements.

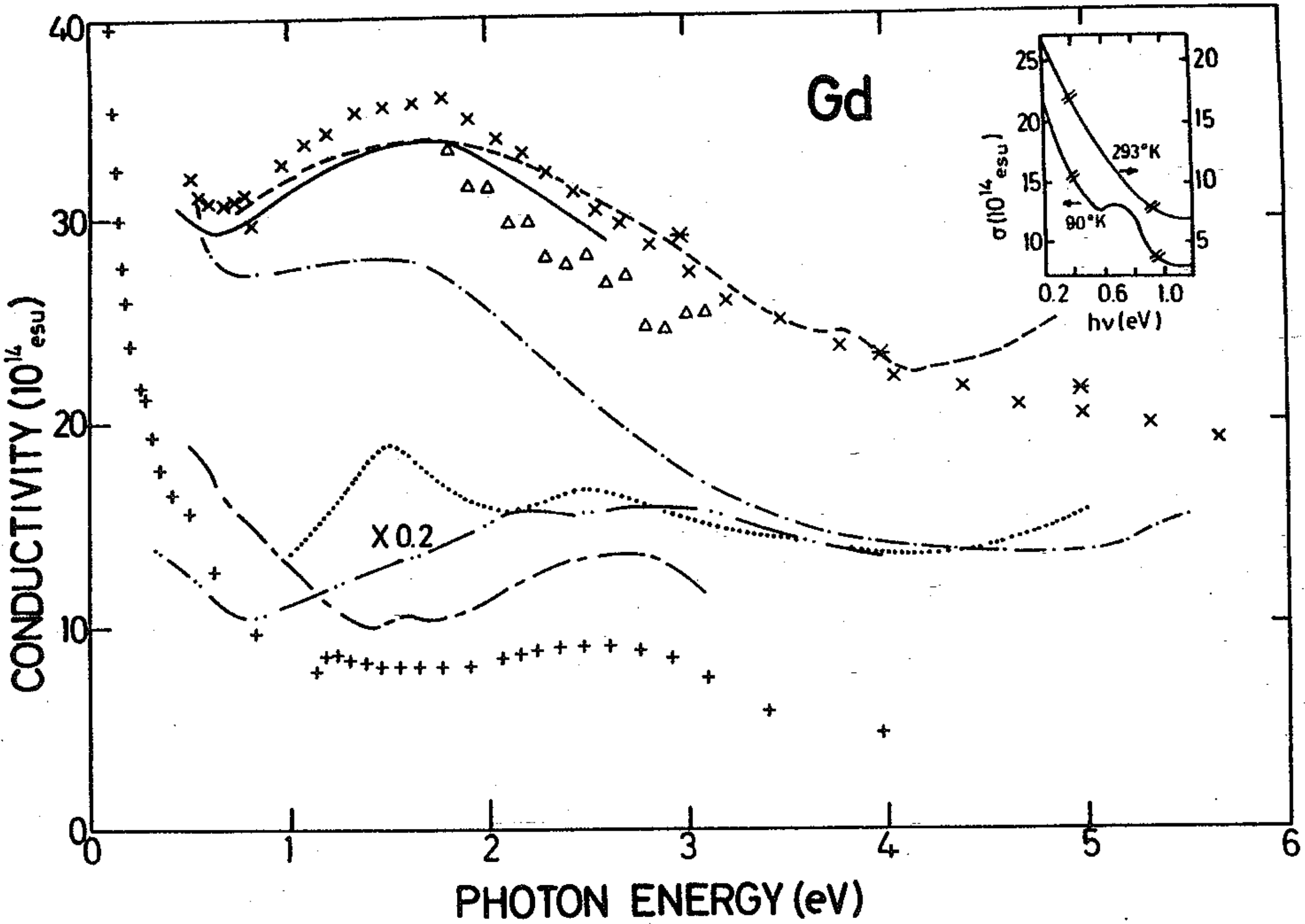

Fig. 58 Optical conductivity for Gd. Polycrystalline results by GZN78 (— - —); Sch66 (—··—); HC69 (xxx); EBF74 (—·—); PMF77 (···); Mye76 (---); MJT74 (ΔΔΔ); KN70 and KN71 (+++); KT75 (ooo); QLJ81 (***); KN77 (-++-) shown as inset.

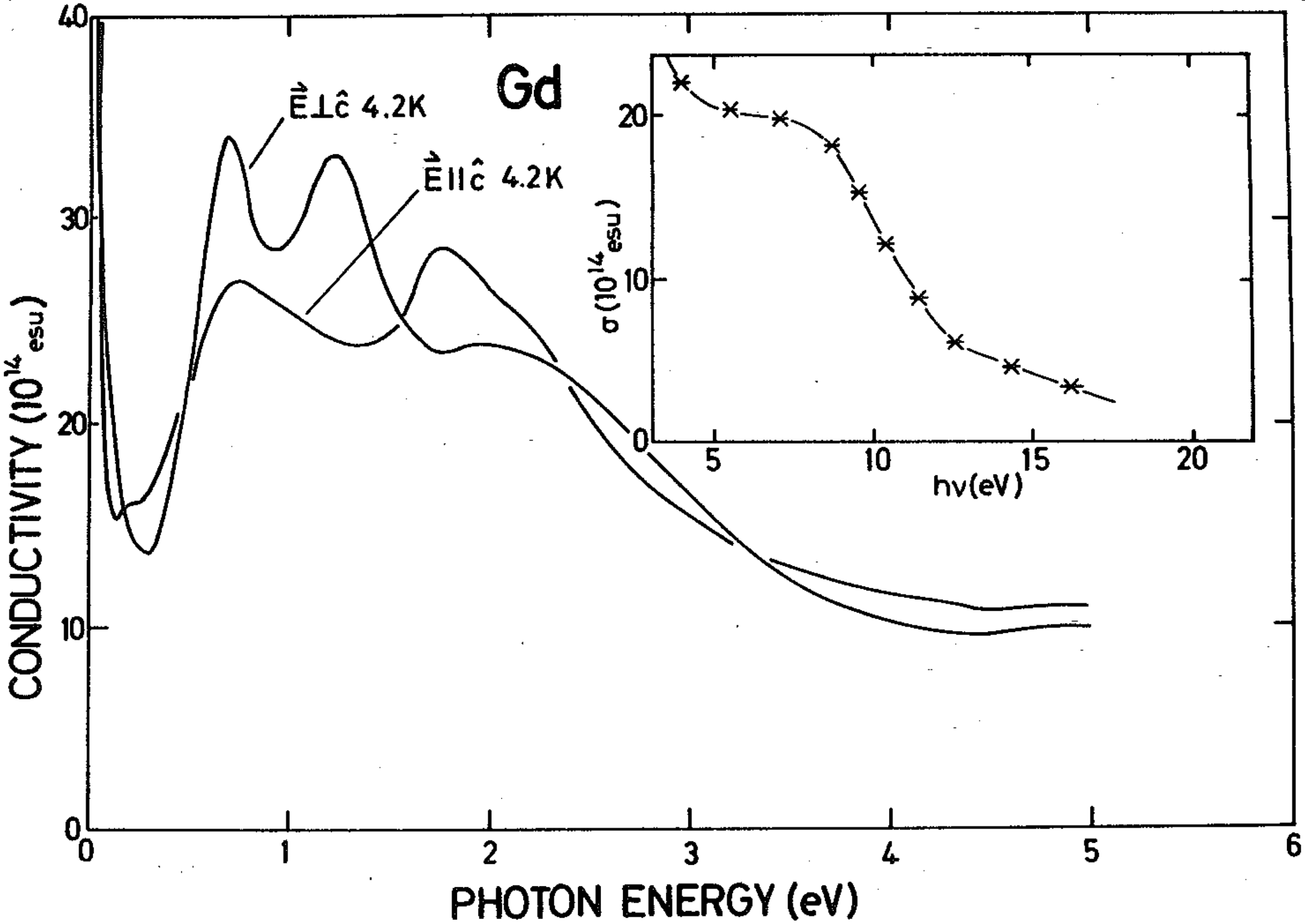

Fig. 59 Optical conductivity for Gd. Single crystal results by WL75 for $\vec{E}\parallel\hat{c}$ and $\vec{E}\perp\hat{c}$; polycrystalline results by QLG81 (***) shown as inset.

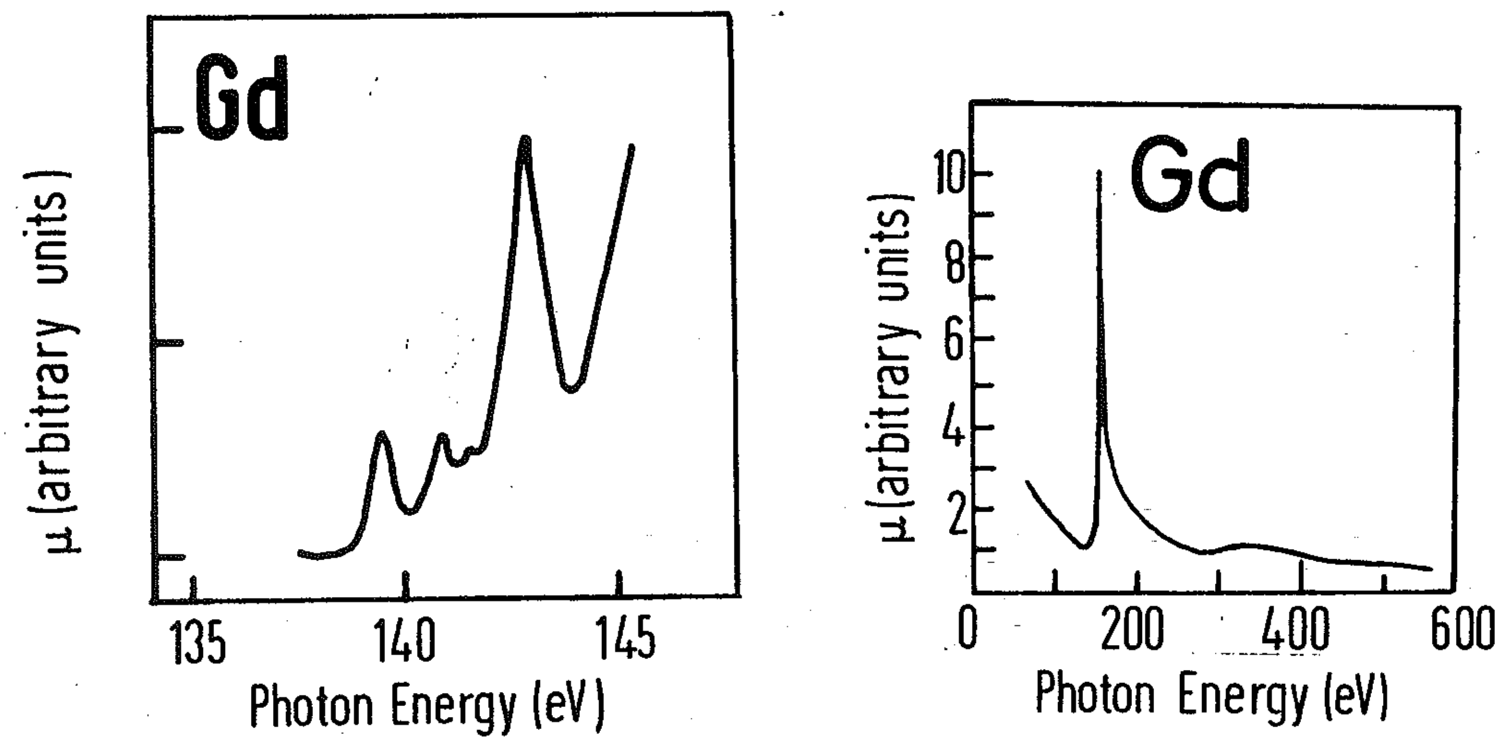

Fig. 61 Absorption coefficient of Gd. FZG67 show fine structure below the onset of the large maxima. Fine structure is interpolated by ZFG67 in the expanded energy range.

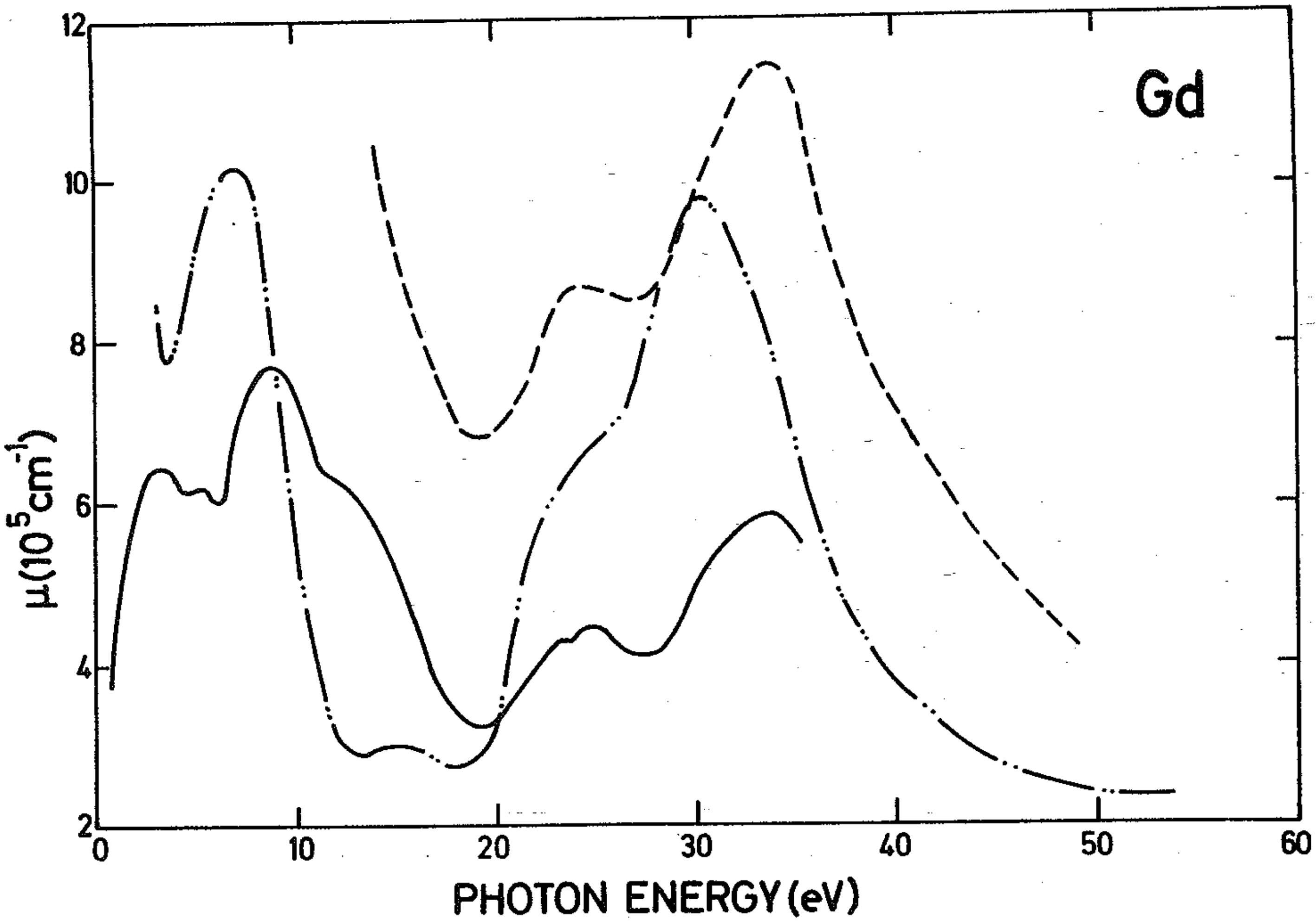

Fig. 60 Absorption coefficient for Gd for $0 \leq h\nu \leq 60$ eV. Polycrystalline results by EF76 (——); results of Dan71 (---) and CGW 80 (—··—) derived from electron energy loss measurements.

Gadolinium single crystal with $\vec{E} \parallel \hat{c}$

publication by J.H. Weaver and D.W. Lynch in Phys. Rev. Lett. 34, 1324 (1975)
based on the following tabulation

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
0.06	-711.91	171.53	3.19	1.26	0.00	.112
0.10	-446.20	133.28	3.12	1.25	0.00	.107
0.12	-303.04	105.87	3.00	1.22	0.00	.099
0.14	-215.99	94.56	3.15	1.25	0.00	.108
0.16	-162.89	82.25	3.13	1.25	0.00	.107
0.18	-125.16	74.59	3.20	1.27	0.00	.112
0.20	-99.62	67.16	3.20	1.27	0.00	.112
0.22	-79.92	60.73	3.20	1.26	0.01	.112
0.24	-64.29	56.32	3.25	1.28	0.01	.116
0.26	-52.82	51.88	3.26	1.28	0.01	.116
0.28	-42.30	49.15	3.36	1.30	0.01	.123
0.30	-34.96	46.97	3.43	1.31	0.01	.128
0.32	-28.87	44.77	3.49	1.32	0.02	.132
0.34	-23.16	43.37	3.61	1.34	0.02	.139
0.36	-19.34	42.45	3.70	1.36	0.02	.145
0.38	-16.23	41.38	3.76	1.37	0.02	.150
0.40	-13.47	40.49	3.82	1.38	0.02	.154
0.42	-11.76	39.64	3.85	1.39	0.02	.156
0.44	-9.83	38.53	3.87	1.39	0.02	.157
0.46	-8.15	37.76	3.90	1.40	0.03	.160
0.48	-6.84	37.17	3.93	1.40	0.03	.162
0.50	-5.72	36.65	3.96	1.41	0.03	.163
0.52	-4.81	36.30	3.99	1.41	0.03	.165
0.54	-4.36	36.05	4.00	1.41	0.03	.166
0.56	-4.03	35.63	3.99	1.41	0.03	.165
0.58	-3.77	35.26	3.98	1.41	0.03	.165
0.60	-3.79	34.93	3.96	1.41	0.03	.163
0.62	-3.91	34.47	3.92	1.40	0.03	.161
0.64	-4.14	33.97	3.88	1.39	0.03	.158
0.66	-4.44	33.35	3.82	1.38	0.03	.154
0.68	-4.78	32.65	3.76	1.37	0.03	.150
0.70	-5.08	31.83	3.68	1.36	0.03	.145
0.72	-5.32	30.95	3.61	1.34	0.03	.140
0.74	-5.48	30.07	3.54	1.33	0.03	.135
0.76	-5.63	29.20	3.47	1.32	0.03	.130
0.78	-5.71	28.33	3.41	1.30	0.03	.126
0.80	-5.78	27.46	3.34	1.29	0.03	.121
0.84	-5.63	25.84	3.23	1.27	0.04	.114
0.88	-5.54	24.47	3.13	1.25	0.04	.107
0.92	-5.38	23.16	3.03	1.23	0.04	.101
0.96	-5.22	21.97	2.95	1.21	0.04	.095
1.00	-5.01	20.86	2.87	1.20	0.05	.090
1.05	-4.71	19.63	2.78	1.18	0.05	.085
1.10	-4.44	18.56	2.71	1.16	0.05	.080
1.15	-4.22	17.55	2.63	1.15	0.05	.075
1.20	-3.85	16.60	2.57	1.13	0.06	.071
1.25	-3.49	15.82	2.52	1.12	0.06	.068
1.30	-3.13	15.17	2.49	1.11	0.06	.066
1.35	-2.84	14.63	2.46	1.11	0.07	.065

Gd $\vec{E} \parallel \hat{c}$

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
1.40	-2.54	14.13	2.43	1.10	0.07	.063
1.45	-2.18	13.73	2.42	1.10	0.07	.063
1.50	-1.81	13.49	2.43	1.10	0.07	.063
1.52	-1.68	13.47	2.44	1.10	0.07	.064
1.54	-1.55	13.47	2.45	1.11	0.07	.064
1.56	-1.45	13.54	2.47	1.11	0.07	.065
1.58	-1.45	13.64	2.48	1.11	0.07	.066
1.60	-1.49	13.73	2.48	1.11	0.07	.066
1.65	-1.80	13.87	2.47	1.11	0.07	.065
1.70	-2.34	13.81	2.42	1.10	0.07	.062
1.75	-2.85	13.50	2.34	1.08	0.07	.058
1.80	-3.27	13.05	2.26	1.06	0.07	.053
1.85	-3.61	12.54	2.17	1.04	0.07	.049
1.90	-3.87	12.00	2.09	1.02	0.08	.045
1.95	-4.04	11.42	2.01	1.00	0.08	.040
2.00	-4.10	10.89	1.94	0.99	0.08	.037
2.05	-4.13	10.43	1.88	0.97	0.08	.035
2.10	-4.16	10.03	1.83	0.96	0.09	.032
2.15	-4.24	9.65	1.77	0.94	0.09	.030
2.20	-4.34	9.24	1.71	0.93	0.09	.028
2.25	-4.41	8.80	1.65	0.91	0.09	.025
2.30	-4.45	8.34	1.58	0.89	0.09	.023
2.35	-4.45	7.88	1.52	0.87	0.10	.021
2.40	-4.40	7.43	1.46	0.85	0.10	.019
2.45	-4.32	7.00	1.40	0.84	0.10	.018
2.50	-4.18	6.61	1.35	0.82	0.11	.016
2.60	-3.89	5.95	1.27	0.80	0.12	.015
2.70	-3.60	5.41	1.20	0.78	0.13	.014
2.80	-3.30	4.96	1.15	0.76	0.14	.013
2.90	-3.07	4.56	1.10	0.74	0.15	.013
3.00	-2.79	4.23	1.07	0.73	0.16	.013
3.10	-2.58	3.93	1.03	0.72	0.18	.012
3.20	-2.37	3.65	1.00	0.71	0.19	.012
3.30	-2.15	3.41	0.97	0.70	0.21	.012
3.40	-1.95	3.20	0.95	0.69	0.23	.013
3.50	-1.76	3.02	0.93	0.68	0.25	.013
3.60	-1.57	2.86	0.92	0.68	0.27	.013
3.70	-1.40	2.74	0.92	0.68	0.29	.013
3.80	-1.26	2.64	0.91	0.68	0.31	.013
3.90	-1.20	2.49	0.88	0.67	0.33	.013
4.00	-1.01	2.37	0.88	0.67	0.36	.013
4.10	-0.90	2.30	0.89	0.67	0.38	.013
4.20	-0.80	2.21	0.88	0.66	0.40	.013
4.30	-0.70	2.13	0.88	0.66	0.42	.013
4.40	-0.63	2.03	0.86	0.66	0.45	.013
4.50	-0.46	1.96	0.88	0.66	0.48	.013
4.60	-0.36	1.94	0.90	0.67	0.50	.013
4.80	-0.24	1.88	0.91	0.67	0.52	.013

Gadolinium single crystal with $\vec{E}\perp\hat{c}$

publication by J.H. Weaver and D.W. Lynch in Phys. Rev. Lett. 34, 1324 (1978) based on the following tabulation

Energy (eV)	ε_1	ε_2	n	k	$\mathrm{Im}(-1/\tilde{\varepsilon})$	$R(\phi=0)$
0.10	-593.73	163.42	3.32	1.29	0.00	.120
0.12	-409.71	124.33	3.04	1.23	0.00	.101
0.14	-298.33	99.91	2.85	1.19	0.00	.089
0.16	-225.37	83.05	2.72	1.17	0.00	.081
0.18	-174.96	71.51	2.65	1.15	0.00	.076
0.20	-138.97	62.01	2.57	1.13	0.00	.071
0.22	-111.59	54.48	2.51	1.12	0.00	.068
0.24	-90.20	48.53	2.47	1.11	0.00	.066
0.26	-72.98	43.64	2.45	1.11	0.01	.064
0.28	-58.55	40.22	2.50	1.12	0.01	.067
0.30	-46.61	37.60	2.58	1.13	0.01	.072
0.32	-36.06	36.77	2.78	1.18	0.01	.084
0.34	-28.20	36.33	2.98	1.22	0.02	.098
0.36	-21.24	36.59	3.25	1.27	0.02	.115
0.38	-16.52	37.10	3.47	1.32	0.02	.130
0.40	-12.71	37.41	3.66	1.35	0.02	.143
0.42	-9.86	37.60	3.81	1.38	0.02	.153
0.44	-7.32	37.51	3.93	1.40	0.03	.161
0.46	-4.96	37.49	4.05	1.42	0.03	.169
0.48	-2.81	37.72	4.18	1.45	0.03	.178
0.50	-1.02	38.30	4.32	1.47	0.03	.187
0.52	0.20	39.22	4.44	1.49	0.03	.195
0.54	0.80	40.25	4.53	1.51	0.02	.201
0.56	0.90	41.21	4.59	1.51	0.02	.205
0.58	0.42	42.06	4.61	1.52	0.02	.206
0.60	-0.45	42.53	4.59	1.51	0.02	.205
0.62	-1.48	42.67	4.54	1.51	0.02	.202
0.64	-2.64	42.61	4.47	1.50	0.02	.197
0.66	-4.16	42.35	4.38	1.48	0.02	.191
0.68	-5.83	41.53	4.25	1.46	0.02	.183
0.70	-7.30	40.20	4.10	1.43	0.02	.172
0.72	-8.56	38.53	3.93	1.40	0.02	.161
0.74	-9.42	36.54	3.76	1.37	0.03	.150
0.76	-9.77	34.44	3.61	1.34	0.03	.140
0.78	-9.63	32.47	3.48	1.32	0.03	.131
0.80	-9.12	30.83	3.39	1.30	0.03	.125
0.84	-8.10	28.47	3.28	1.28	0.03	.117
0.88	-6.98	26.74	3.21	1.27	0.04	.113
0.92	-6.04	25.59	3.18	1.26	0.04	.111
0.96	-5.49	24.70	3.15	1.25	0.04	.108
1.00	-4.63	23.97	3.15	1.25	0.04	.108
1.05	-4.11	23.77	3.16	1.26	0.04	.110
1.10	-4.34	23.76	3.15	1.25	0.04	.108
1.15	-5.08	23.50	3.08	1.24	0.04	.104
1.20	-6.04	22.84	2.97	1.22	0.04	.097
1.25	-7.07	21.78	2.81	1.19	0.04	.087
1.30	-7.86	20.35	2.64	1.15	0.04	.076
1.35	-8.40	18.68	2.46	1.11	0.04	.065
1.40	-8.36	16.98	2.30	1.07	0.05	.056

Gd $\vec{E} \perp \hat{c}$

Energy (eV)	ε_1	ε_2	n	k	Im(-1/$\tilde{\varepsilon}$)	R(ϕ=0)
1.45	-8.06	15.54	2.17	1.04	0.05	.049
1.50	-7.59	14.39	2.08	1.02	0.05	.044
1.52	-7.50	13.92	2.04	1.01	0.06	.042
1.54	-7.19	13.48	2.01	1.00	0.06	.041
1.56	-6.96	13.14	1.99	1.00	0.06	.040
1.58	-6.72	12.84	1.97	0.99	0.06	.039
1.60	-6.48	12.59	1.96	0.99	0.06	.038
1.65	-6.06	12.03	1.92	0.98	0.07	.036
1.70	-5.66	11.52	1.89	0.97	0.07	.035
1.75	-5.27	11.12	1.88	0.97	0.07	.034
1.80	-4.97	10.82	1.86	0.96	0.08	.034
1.85	-4.76	10.56	1.85	0.96	0.08	.033
1.90	-4.63	10.30	1.83	0.96	0.08	.032
1.95	-4.52	10.04	1.80	0.95	0.08	.031
2.00	-4.46	9.78	1.77	0.94	0.08	.030
2.05	-4.40	9.52	1.74	0.93	0.09	.029
2.10	-4.37	9.25	1.71	0.93	0.09	.027
2.15	-4.33	8.98	1.68	0.92	0.09	.026
2.20	-4.32	8.72	1.64	0.91	0.09	.025
2.25	-4.32	8.45	1.61	0.90	0.09	.024
2.30	-4.32	8.17	1.57	0.89	0.10	.023
2.35	-4.32	7.88	1.53	0.87	0.10	.021
2.40	-4.30	7.59	1.49	0.86	0.10	.020
2.45	-4.28	7.30	1.45	0.85	0.10	.019
2.50	-4.24	7.01	1.41	0.84	0.10	.018
2.60	-4.15	6.46	1.33	0.81	0.11	.016
2.70	-4.04	5.93	1.25	0.79	0.12	.015
2.80	-3.90	5.44	1.18	0.77	0.12	.014
2.90	-3.76	4.97	1.11	0.75	0.13	.013
3.00	-3.59	4.51	1.04	0.72	0.14	.012
3.10	-3.38	4.09	0.98	0.70	0.15	.012
3.20	-3.16	3.71	0.93	0.68	0.16	.013
3.30	-2.91	3.38	0.88	0.66	0.17	.013
3.40	-2.67	3.09	0.84	0.65	0.19	.014
3.50	-2.42	2.85	0.81	0.64	0.20	.014
3.60	-2.18	2.65	0.79	0.63	0.23	.015
3.70	-1.95	2.49	0.78	0.62	0.25	.015
3.80	-1.76	2.35	0.77	0.62	0.27	.016
3.90	-1.58	2.22	0.76	0.62	0.30	.016
4.00	-1.40	2.11	0.75	0.61	0.33	.016
4.10	-1.24	2.01	0.75	0.61	0.36	.016
4.20	-1.09	1.92	0.75	0.61	0.39	.016
4.30	-0.94	1.85	0.75	0.61	0.43	.016
4.40	-0.79	1.78	0.76	0.62	0.47	.016
4.50	-0.63	1.75	0.78	0.63	0.51	.015
4.60	-0.53	1.75	0.81	0.63	0.52	.014
4.80	-0.39	1.69	0.82	0.64	0.56	.014
5.00	-0.24	1.64	0.84	0.65	0.60	.014