

| Authors | Energy Range (eV) | Technique | Temperature (K) RT unless specified | Sample | | | | Data Presentation | Remarks Fe |
|---------|-------------------|-------------|--|--------|-------|------|------|--|---|
| | | | | Film | X-tal | Bulk | Prep | | |
| Sa39 | 2.6-27.6 | Ref1 | | x | | | Ex | R | crystal heated in H ₂ to 800°C in uhv sy |
| YK65 | 1.77-3.44 | Ellips | | | x | | In | n,k | |
| LT66 | 0.06-0.25 | Ellips | | | | x | MP | $\epsilon_2/\lambda, -\epsilon_1$ | |
| LTA66 | 0.1-3.5 | Ellips | | | | x | MP | $\epsilon_2/\lambda, \epsilon_1$ | |
| BS67 | ~2.1-11.6 | Ref1 | | | | x | EP | R | |
| Le67 | <4 | Ellips | | | | x | MP | ϵ_2/λ | |
| BKM69 | 0.07-4.89 | Ellips | | | | x | | n,k, σ | |
| SHK69 | 40-300 | Trans | | x | | | Ex | μ | |
| ZR71 | | | 400-1100 | | | | x | ϵ_H | |
| JPT72 | ~0.08-~0.48 | Ref1 | 9, 290 | | | | x | A | |
| JC74 | 0.5-6.5 | Trans, Ref1 | | x | | | Ex | n,k, σ | |
| WeG74 | 2-130 | Trans | | | | x | Ex | KK: μ | |
| WGa74 | 2-120 | Trans | | x | | | Ex | $\mu, \text{Im}(\epsilon^{-1}); \text{KK}: \epsilon_1, \epsilon_2$ | |
| MRD76 | 2-27 | Ref1 | | x | | x | In | R; KK: ϵ_1, ϵ_2 | |
| ST77 | 0.05-0.1 | Ellips | | | x | | MP | $-\epsilon_1, \epsilon_2$ | |
| WCL79 | 0.2-5 | Ref1 | 4.2 for $h\nu < 4.4$ eV | | | | x | EP A; KK: σ | |

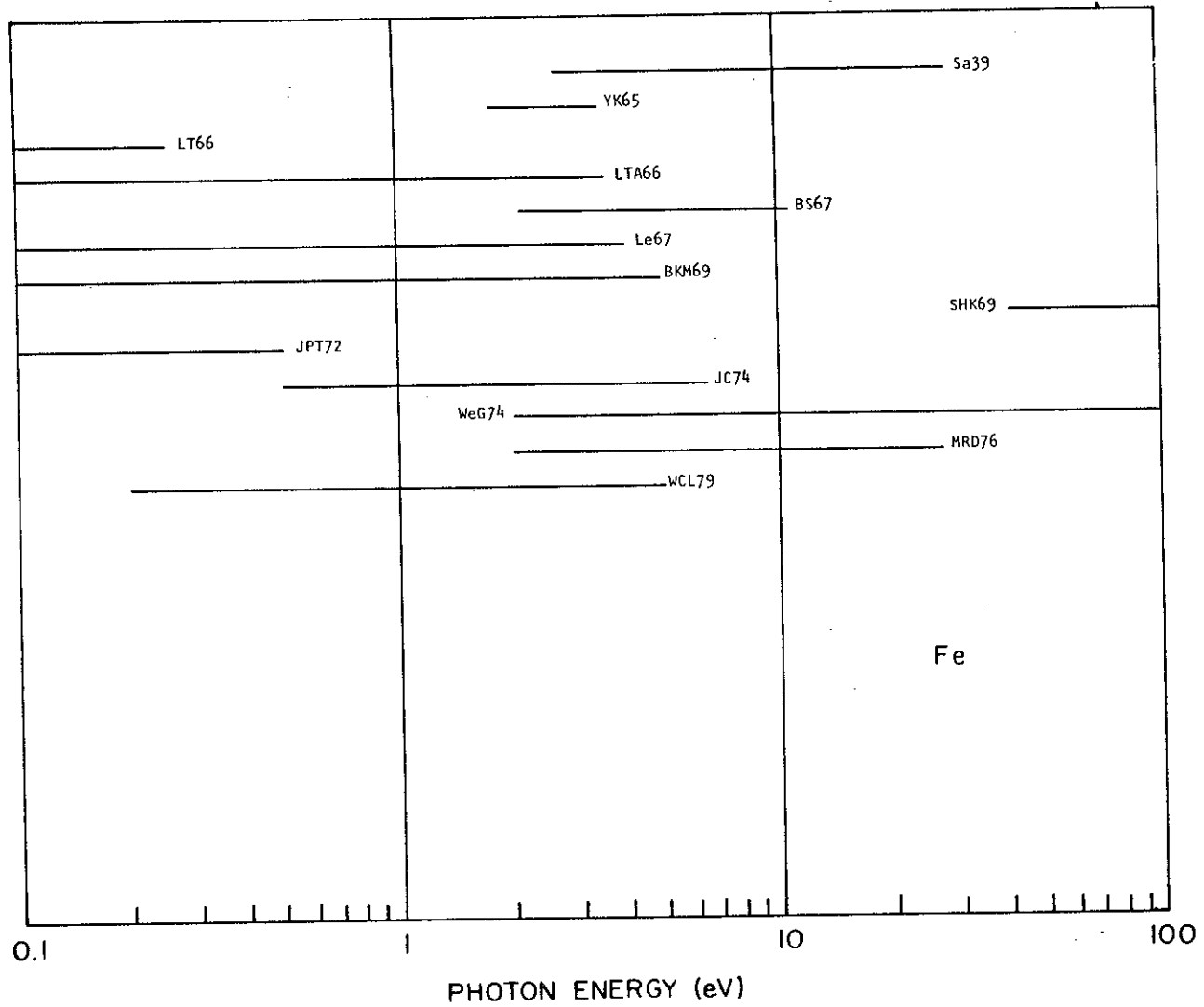


Fig. 22 Survey of available data for Fe

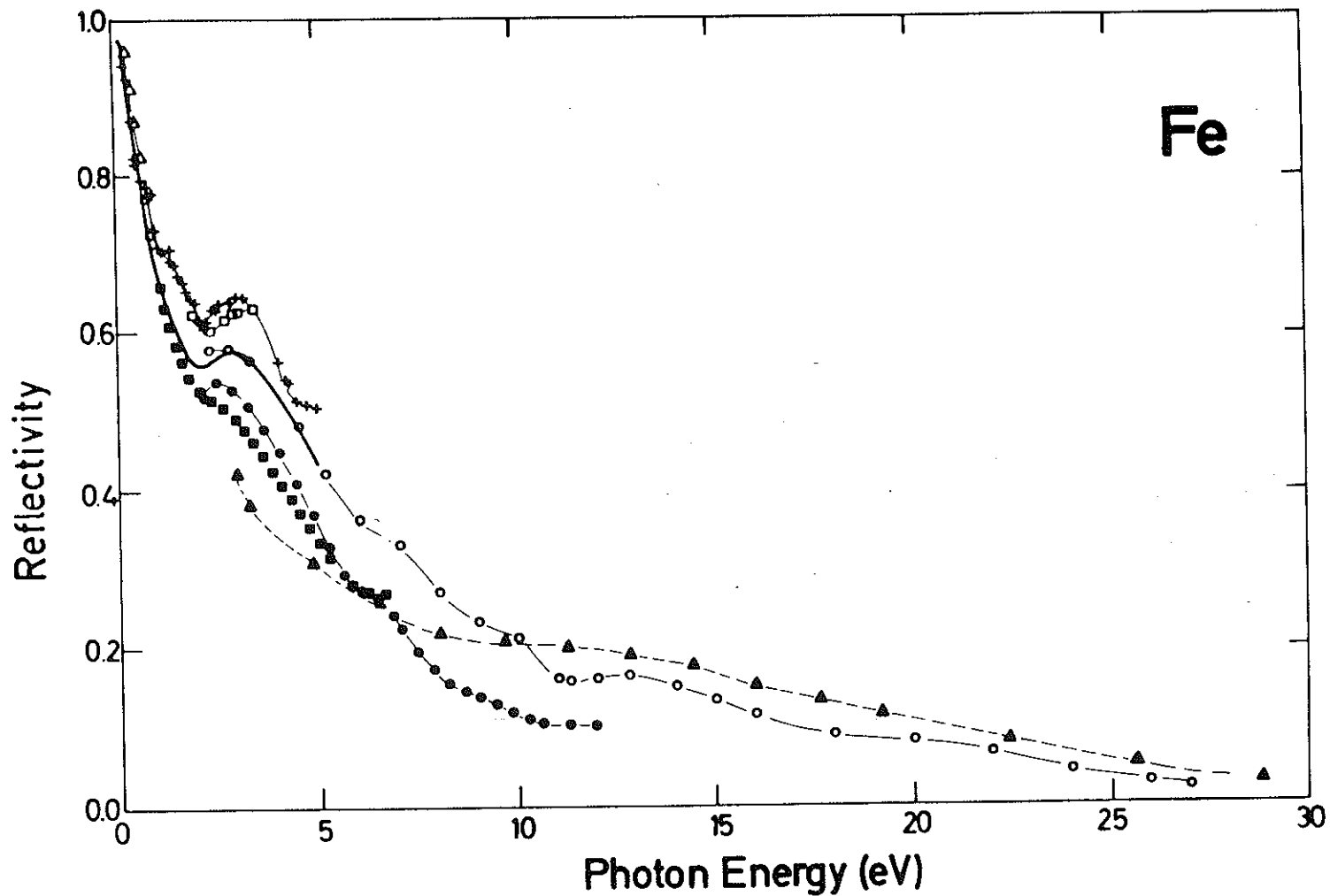


Fig. 23 Reflectivity of Fe. — WCL79; □□□ YK65; •-•- BS67; ΔΔΔ JPT72;
 ■■■ JC74; ▲-▲ WeG74; +++ BKM69; o-o-o MRD76.

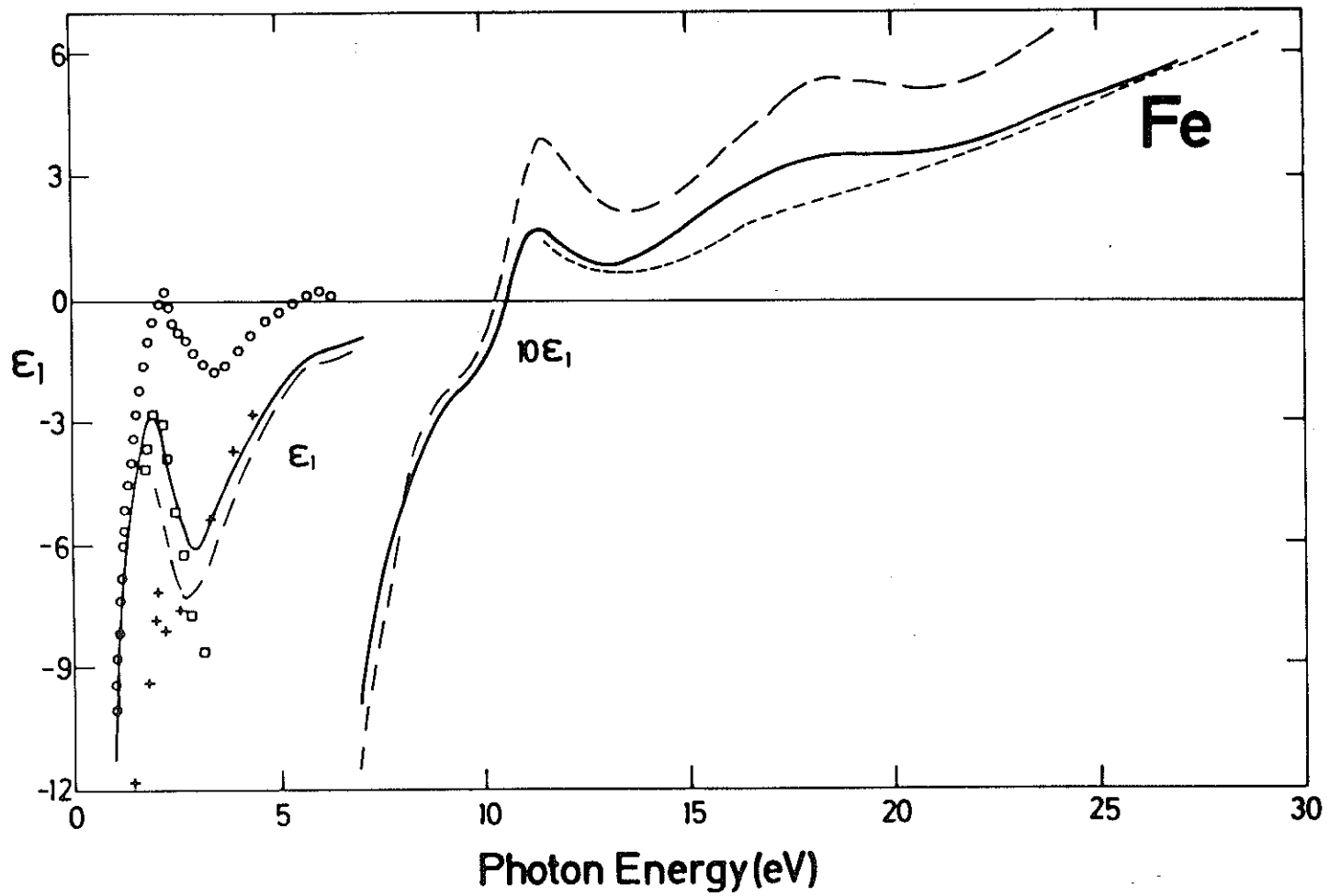


Fig. 24 ϵ_1 for Fe. — WCL79; ooo JC74; □□□ YK65; - - - MRD76;
 --- WeG74; +++ BKM69.

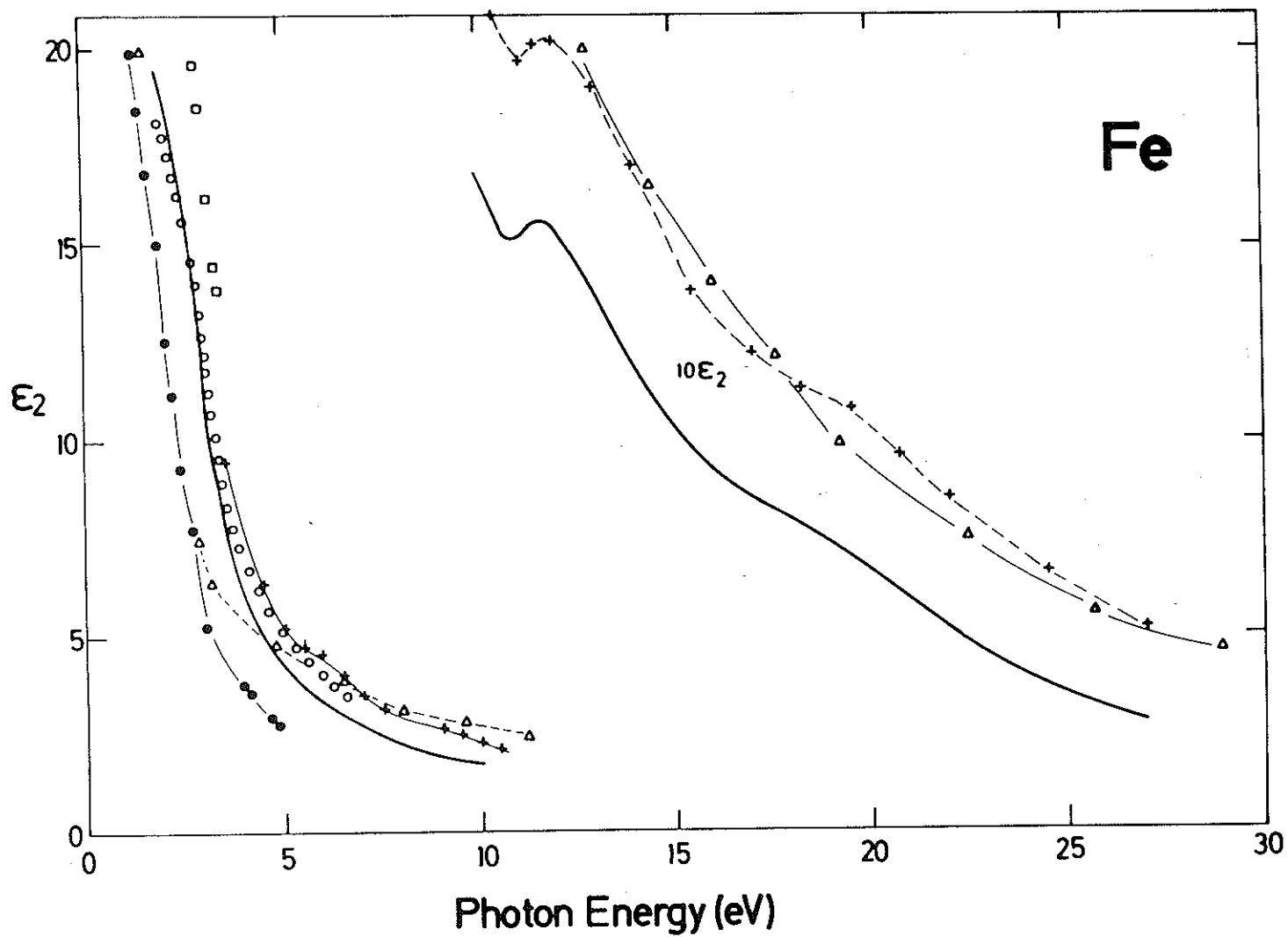


Fig. 25 ϵ_2 for Fe. — WCL79; +++ MRD76; ●●● BKM69; □□□ YK65; $\Delta\Delta\Delta$ WeG74; ○○○ JC74.

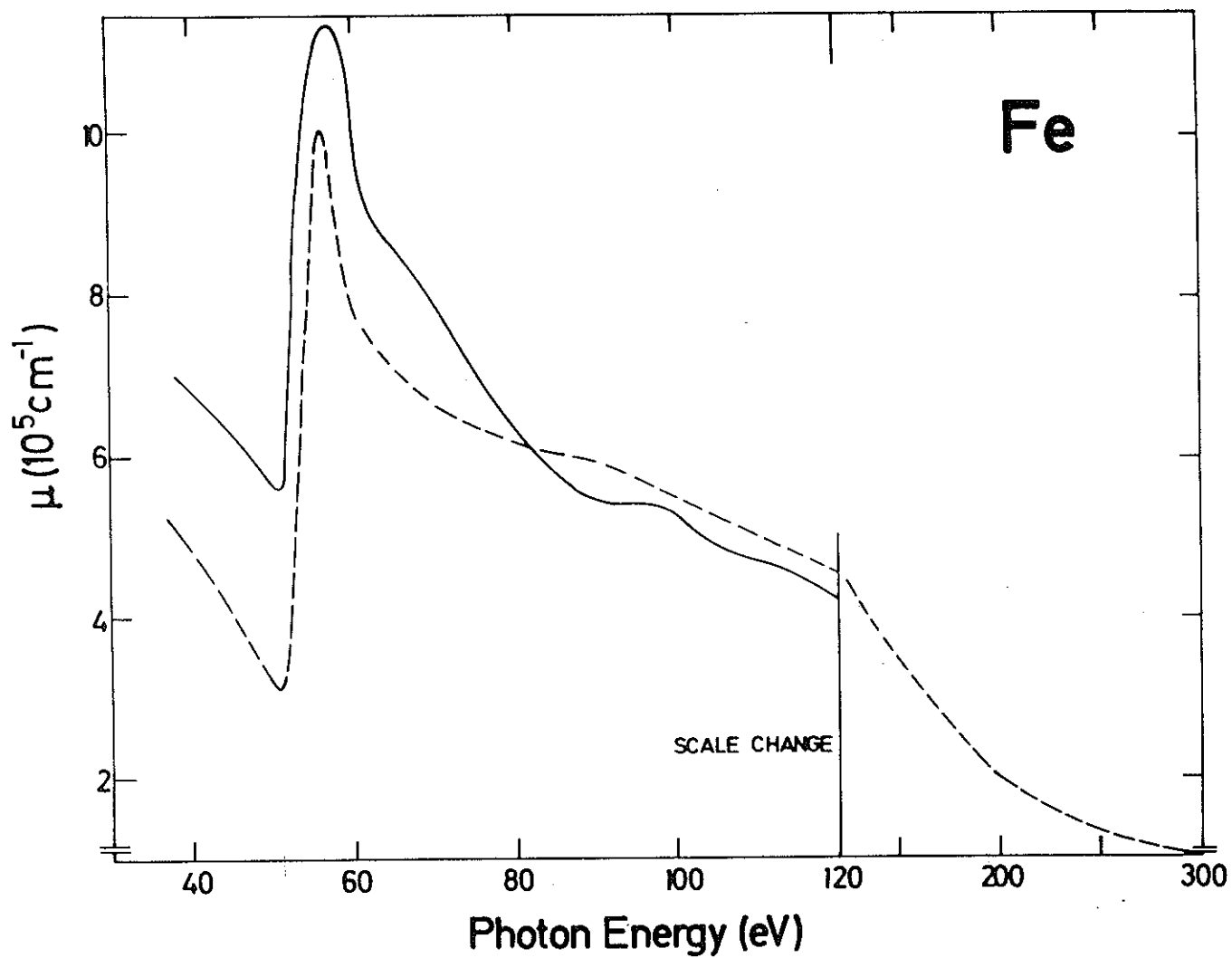


Fig. 26 Absorption coefficient for Fe. — WeG74; --- SHK69.

Iron

publication by J.H. Weaver, E. Colavita, D.W. Lynch, and R. Rosei in Phys. Rev. B 19, 3850 (1979) based on the following tabulation

| Energy (eV) | ϵ_1 | ϵ_2 | n | k | $\text{Im}(-1/\epsilon)$ | $R(\phi=0)$ |
|-------------|--------------|--------------|------|-------|--------------------------|-------------|
| 0.10 | -1052.76 | 424.38 | 6.41 | 33.07 | 0.00 | .978 |
| 0.13 | -679.13 | 335.64 | 6.26 | 26.80 | 0.00 | .967 |
| 0.15 | -481.49 | 285.48 | 6.26 | 22.82 | 0.00 | .956 |
| 0.17 | -381.70 | 257.79 | 6.28 | 20.52 | 0.00 | .947 |
| 0.20 | -318.60 | 134.32 | 3.68 | 18.23 | 0.00 | .958 |
| 0.22 | -215.90 | 148.27 | 4.80 | 15.46 | 0.00 | .930 |
| 0.24 | -187.84 | 144.72 | 4.96 | 14.58 | 0.00 | .920 |
| 0.26 | -162.22 | 136.16 | 4.98 | 13.68 | 0.00 | .911 |
| 0.28 | -143.23 | 123.34 | 4.78 | 12.89 | 0.00 | .904 |
| 0.30 | -121.57 | 117.37 | 4.87 | 12.05 | 0.00 | .892 |
| 0.32 | -110.64 | 109.19 | 4.73 | 11.53 | 0.00 | .880 |
| 0.34 | -96.94 | 102.55 | 4.70 | 10.91 | 0.01 | .876 |
| 0.36 | -87.07 | 97.83 | 4.68 | 10.44 | 0.01 | .867 |
| 0.38 | -80.04 | 93.33 | 4.63 | 10.07 | 0.01 | .861 |
| 0.40 | -75.50 | 86.24 | 4.42 | 9.75 | 0.01 | .858 |
| 0.50 | -47.17 | 66.32 | 4.14 | 8.02 | 0.01 | .817 |
| 0.60 | -32.79 | 54.65 | 3.93 | 6.95 | 0.01 | .783 |
| 0.70 | -23.73 | 46.63 | 3.78 | 6.17 | 0.02 | .752 |
| 0.80 | -18.07 | 40.84 | 3.65 | 5.60 | 0.02 | .725 |
| 0.90 | -14.18 | 36.32 | 3.52 | 5.16 | 0.02 | .700 |
| 1.00 | -11.20 | 32.84 | 3.43 | 4.79 | 0.03 | .678 |
| 1.10 | -9.33 | 30.07 | 3.33 | 4.52 | 0.03 | .660 |
| 1.20 | -7.66 | 27.67 | 3.24 | 4.26 | 0.03 | .641 |
| 1.30 | -6.51 | 25.72 | 3.16 | 4.07 | 0.04 | .626 |
| 1.40 | -5.23 | 24.16 | 3.12 | 3.87 | 0.04 | .609 |
| 1.50 | -4.93 | 22.95 | 3.05 | 3.77 | 0.04 | .601 |
| 1.60 | -3.91 | 21.60 | 3.00 | 3.60 | 0.04 | .585 |
| 1.70 | -3.47 | 20.97 | 2.94 | 3.52 | 0.05 | .577 |
| 1.80 | -3.44 | 20.24 | 2.92 | 3.46 | 0.05 | .573 |
| 1.90 | -2.96 | 19.50 | 2.89 | 3.37 | 0.05 | .563 |
| 2.00 | -3.12 | 19.20 | 2.86 | 3.36 | 0.05 | .563 |
| 2.10 | -3.28 | 18.69 | 2.80 | 3.34 | 0.05 | .562 |
| 2.20 | -3.61 | 18.23 | 2.74 | 3.33 | 0.05 | .563 |
| 2.30 | -4.12 | 17.65 | 2.65 | 3.34 | 0.05 | .567 |
| 2.40 | -4.44 | 16.93 | 2.56 | 3.31 | 0.06 | .567 |
| 2.50 | -4.87 | 16.29 | 2.46 | 3.31 | 0.06 | .570 |
| 2.60 | -5.45 | 15.44 | 2.34 | 3.30 | 0.06 | .576 |
| 2.70 | -5.58 | 14.51 | 2.23 | 3.25 | 0.06 | .575 |
| 2.80 | -5.95 | 13.66 | 2.12 | 3.23 | 0.06 | .580 |
| 2.90 | -6.04 | 12.72 | 2.01 | 3.17 | 0.06 | .580 |
| 3.00 | -6.21 | 11.76 | 1.88 | 3.12 | 0.07 | .583 |
| 3.10 | -6.04 | 10.82 | 1.78 | 3.04 | 0.07 | .580 |
| 3.20 | -5.87 | 10.02 | 1.70 | 2.96 | 0.07 | .576 |
| 3.30 | -5.65 | 9.28 | 1.62 | 2.87 | 0.08 | .572 |
| 3.40 | -5.36 | 8.63 | 1.55 | 2.79 | 0.08 | .565 |
| 3.50 | -5.01 | 8.11 | 1.50 | 2.70 | 0.09 | .556 |
| 3.60 | -4.74 | 7.70 | 1.47 | 2.63 | 0.09 | .548 |
| 3.70 | -4.53 | 7.33 | 1.43 | 2.56 | 0.10 | .542 |
| 3.83 | -4.28 | 6.85 | 1.38 | 2.49 | 0.10 | .534 |

Fe

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| Energy (eV) | ϵ_1 | ϵ_2 | n | k | $\text{Im}(-1/\bar{\epsilon})$ | $R(\phi=0)$ |
|-------------|--------------|--------------|------|------|--------------------------------|-------------|
| 4.00 | -4.01 | 6.22 | 1.30 | 2.39 | 0.11 | .527 |
| 4.17 | -3.59 | 5.71 | 1.26 | 2.27 | 0.13 | .510 |
| 4.33 | -3.24 | 5.34 | 1.23 | 2.18 | 0.14 | .494 |
| 4.50 | -2.98 | 5.02 | 1.20 | 2.10 | 0.15 | .482 |
| 4.67 | -2.74 | 4.68 | 1.16 | 2.02 | 0.16 | .470 |
| 4.83 | -2.43 | 4.42 | 1.14 | 1.93 | 0.17 | .451 |
| 5.00 | -2.18 | 4.24 | 1.14 | 1.87 | 0.19 | .435 |
| 5.17 | -2.04 | 4.05 | 1.12 | 1.81 | 0.20 | .425 |
| 5.33 | -1.82 | 3.90 | 1.11 | 1.75 | 0.21 | .408 |
| 5.50 | -1.72 | 3.74 | 1.09 | 1.71 | 0.22 | .401 |
| 5.67 | -1.52 | 3.61 | 1.09 | 1.65 | 0.24 | .383 |
| 5.83 | -1.40 | 3.53 | 1.10 | 1.61 | 0.24 | .373 |
| 6.00 | -1.32 | 3.47 | 1.09 | 1.59 | 0.25 | .366 |
| 6.17 | -1.31 | 3.38 | 1.08 | 1.57 | 0.26 | .365 |
| 6.33 | -1.31 | 3.23 | 1.04 | 1.55 | 0.27 | .365 |
| 6.50 | -1.24 | 3.07 | 1.02 | 1.51 | 0.28 | .358 |
| 6.67 | -1.16 | 2.93 | 1.00 | 1.47 | 0.29 | .351 |
| 6.83 | -1.11 | 2.79 | 0.97 | 1.43 | 0.31 | .346 |
| 7.00 | -1.00 | 2.66 | 0.96 | 1.39 | 0.33 | .333 |
| 7.17 | -0.94 | 2.54 | 0.94 | 1.35 | 0.35 | .327 |
| 7.33 | -0.81 | 2.44 | 0.94 | 1.30 | 0.37 | .311 |
| 7.50 | -0.71 | 2.38 | 0.94 | 1.26 | 0.39 | .298 |
| 7.67 | -0.63 | 2.33 | 0.94 | 1.23 | 0.40 | .288 |
| 7.83 | -0.57 | 2.28 | 0.94 | 1.21 | 0.41 | .279 |
| 8.00 | -0.52 | 2.23 | 0.94 | 1.18 | 0.43 | .272 |
| 8.17 | -0.47 | 2.18 | 0.94 | 1.16 | 0.44 | .265 |
| 8.33 | -0.42 | 2.14 | 0.94 | 1.14 | 0.45 | .258 |
| 8.50 | -0.37 | 2.10 | 0.94 | 1.12 | 0.46 | .251 |
| 8.67 | -0.34 | 2.06 | 0.94 | 1.10 | 0.47 | .246 |
| 8.83 | -0.31 | 2.02 | 0.93 | 1.08 | 0.48 | .240 |
| 9.00 | -0.28 | 1.99 | 0.93 | 1.07 | 0.49 | .236 |
| 9.17 | -0.27 | 1.95 | 0.92 | 1.06 | 0.50 | .233 |
| 9.33 | -0.25 | 1.90 | 0.91 | 1.04 | 0.52 | .231 |
| 9.50 | -0.23 | 1.85 | 0.90 | 1.02 | 0.53 | .226 |
| 9.67 | -0.20 | 1.80 | 0.90 | 1.00 | 0.55 | .221 |
| 9.83 | -0.19 | 1.75 | 0.89 | 0.99 | 0.56 | .218 |
| 10.00 | -0.17 | 1.69 | 0.88 | 0.97 | 0.59 | .213 |
| 10.17 | -0.11 | 1.63 | 0.87 | 0.94 | 0.61 | .203 |
| 10.33 | -0.07 | 1.60 | 0.87 | 0.91 | 0.62 | .196 |
| 10.50 | -0.03 | 1.56 | 0.87 | 0.89 | 0.64 | .189 |
| 10.67 | 0.02 | 1.53 | 0.88 | 0.87 | 0.65 | .179 |
| 10.83 | 0.08 | 1.51 | 0.89 | 0.85 | 0.66 | .170 |
| 11.00 | 0.13 | 1.52 | 0.91 | 0.83 | 0.65 | .162 |
| 11.17 | 0.16 | 1.54 | 0.92 | 0.83 | 0.64 | .159 |
| 11.33 | 0.17 | 1.55 | 0.93 | 0.84 | 0.64 | .159 |
| 11.50 | 0.16 | 1.56 | 0.93 | 0.84 | 0.63 | .160 |
| 11.67 | 0.15 | 1.56 | 0.93 | 0.84 | 0.64 | .162 |
| 11.83 | 0.14 | 1.55 | 0.92 | 0.84 | 0.64 | .163 |
| 12.00 | 0.13 | 1.53 | 0.91 | 0.84 | 0.65 | .163 |
| 12.17 | 0.11 | 1.51 | 0.90 | 0.84 | 0.66 | .165 |
| 12.33 | 0.11 | 1.49 | 0.89 | 0.83 | 0.67 | .164 |
| 12.50 | 0.09 | 1.47 | 0.88 | 0.83 | 0.68 | .165 |
| 12.67 | 0.08 | 1.43 | 0.87 | 0.82 | 0.69 | .166 |
| 12.83 | 0.07 | 1.39 | 0.86 | 0.81 | 0.71 | .166 |
| 13.00 | 0.09 | 1.36 | 0.85 | 0.80 | 0.73 | .162 |
| 13.17 | 0.09 | 1.33 | 0.84 | 0.79 | 0.75 | .161 |
| 13.33 | 0.09 | 1.30 | 0.84 | 0.78 | 0.76 | .160 |

| Energy (eV) | ϵ_1 | ϵ_2 | n | k | $\text{Im}(-1/\epsilon)$ | $R(\phi=0)$ |
|-------------|--------------|--------------|------|------|--------------------------|-------------|
| 13.50 | 0.09 | 1.27 | 0.83 | 0.77 | 0.78 | .159 |
| 13.67 | 0.09 | 1.24 | 0.82 | 0.76 | 0.80 | .157 |
| 13.83 | 0.10 | 1.21 | 0.81 | 0.75 | 0.82 | .154 |
| 14.00 | 0.11 | 1.18 | 0.81 | 0.73 | 0.84 | .151 |
| 14.17 | 0.12 | 1.16 | 0.80 | 0.72 | 0.85 | .149 |
| 14.33 | 0.13 | 1.13 | 0.80 | 0.71 | 0.87 | .146 |
| 14.50 | 0.14 | 1.11 | 0.79 | 0.70 | 0.89 | .144 |
| 14.67 | 0.15 | 1.08 | 0.79 | 0.69 | 0.91 | .141 |
| 14.83 | 0.16 | 1.05 | 0.78 | 0.67 | 0.93 | .138 |
| 15.00 | 0.17 | 1.03 | 0.78 | 0.66 | 0.94 | .135 |
| 15.17 | 0.19 | 1.01 | 0.78 | 0.65 | 0.96 | .131 |
| 15.33 | 0.20 | 0.99 | 0.78 | 0.64 | 0.97 | .128 |
| 15.50 | 0.20 | 0.98 | 0.77 | 0.63 | 0.98 | .126 |
| 15.67 | 0.22 | 0.95 | 0.77 | 0.62 | 1.00 | .123 |
| 15.83 | 0.23 | 0.94 | 0.77 | 0.61 | 1.01 | .119 |
| 16.00 | 0.25 | 0.92 | 0.77 | 0.60 | 1.01 | .116 |
| 16.17 | 0.26 | 0.91 | 0.78 | 0.58 | 1.02 | .112 |
| 16.33 | 0.27 | 0.90 | 0.78 | 0.58 | 1.02 | .110 |
| 16.50 | 0.28 | 0.88 | 0.78 | 0.57 | 1.03 | .107 |
| 16.67 | 0.28 | 0.87 | 0.77 | 0.56 | 1.04 | .106 |
| 16.83 | 0.30 | 0.86 | 0.78 | 0.55 | 1.04 | .103 |
| 17.00 | 0.30 | 0.86 | 0.78 | 0.55 | 1.04 | .102 |
| 17.17 | 0.31 | 0.84 | 0.78 | 0.54 | 1.05 | .100 |
| 17.33 | 0.31 | 0.83 | 0.78 | 0.54 | 1.05 | .098 |
| 17.50 | 0.32 | 0.82 | 0.77 | 0.53 | 1.06 | .097 |
| 17.67 | 0.33 | 0.81 | 0.77 | 0.52 | 1.06 | .095 |
| 17.83 | 0.34 | 0.80 | 0.78 | 0.51 | 1.06 | .092 |
| 18.00 | 0.34 | 0.79 | 0.78 | 0.51 | 1.06 | .091 |
| 18.17 | 0.35 | 0.79 | 0.78 | 0.51 | 1.06 | .090 |
| 18.33 | 0.35 | 0.78 | 0.78 | 0.50 | 1.06 | .089 |
| 18.50 | 0.35 | 0.77 | 0.77 | 0.50 | 1.07 | .089 |
| 18.67 | 0.35 | 0.77 | 0.77 | 0.50 | 1.08 | .088 |
| 18.83 | 0.35 | 0.76 | 0.77 | 0.49 | 1.09 | .087 |
| 19.00 | 0.35 | 0.75 | 0.77 | 0.49 | 1.10 | .087 |
| 19.17 | 0.34 | 0.74 | 0.76 | 0.49 | 1.11 | .088 |
| 19.33 | 0.34 | 0.73 | 0.76 | 0.48 | 1.13 | .087 |
| 19.50 | 0.34 | 0.71 | 0.75 | 0.47 | 1.14 | .086 |
| 19.67 | 0.35 | 0.70 | 0.75 | 0.47 | 1.15 | .085 |
| 19.83 | 0.35 | 0.69 | 0.75 | 0.46 | 1.16 | .084 |
| 20.00 | 0.35 | 0.67 | 0.74 | 0.45 | 1.17 | .083 |
| 20.17 | 0.35 | 0.66 | 0.74 | 0.44 | 1.17 | .081 |
| 20.33 | 0.35 | 0.65 | 0.74 | 0.44 | 1.18 | .081 |
| 20.50 | 0.35 | 0.64 | 0.74 | 0.43 | 1.20 | .080 |
| 20.67 | 0.36 | 0.62 | 0.73 | 0.43 | 1.21 | .079 |
| 20.83 | 0.36 | 0.61 | 0.73 | 0.42 | 1.21 | .078 |
| 21.00 | 0.36 | 0.60 | 0.73 | 0.41 | 1.23 | .077 |
| 21.17 | 0.36 | 0.58 | 0.72 | 0.40 | 1.24 | .076 |
| 21.33 | 0.37 | 0.57 | 0.72 | 0.39 | 1.24 | .074 |
| 21.50 | 0.37 | 0.56 | 0.72 | 0.38 | 1.24 | .073 |
| 21.67 | 0.38 | 0.54 | 0.72 | 0.38 | 1.24 | .071 |
| 21.83 | 0.38 | 0.53 | 0.72 | 0.37 | 1.25 | .070 |
| 22.00 | 0.38 | 0.52 | 0.72 | 0.36 | 1.25 | .068 |
| 22.17 | 0.39 | 0.50 | 0.71 | 0.35 | 1.25 | .067 |
| 22.33 | 0.40 | 0.49 | 0.72 | 0.34 | 1.22 | .064 |
| 22.50 | 0.40 | 0.48 | 0.72 | 0.34 | 1.22 | .063 |
| 22.67 | 0.41 | 0.47 | 0.72 | 0.33 | 1.22 | .062 |
| 22.83 | 0.41 | 0.46 | 0.72 | 0.32 | 1.20 | .059 |

Fe

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| Energy (eV) | ϵ_1 | ϵ_2 | n | k | $\text{Im}(-1/\tilde{\epsilon})$ | $R(\phi=0)$ |
|-------------|--------------|--------------|------|------|----------------------------------|-------------|
| 23.00 | 0.42 | 0.45 | 0.72 | 0.31 | 1.19 | .058 |
| 23.17 | 0.43 | 0.43 | 0.72 | 0.30 | 1.17 | .056 |
| 23.33 | 0.44 | 0.42 | 0.72 | 0.29 | 1.15 | .054 |
| 23.50 | 0.45 | 0.41 | 0.73 | 0.28 | 1.11 | .050 |
| 23.67 | 0.45 | 0.41 | 0.73 | 0.28 | 1.10 | .049 |
| 23.83 | 0.47 | 0.40 | 0.74 | 0.27 | 1.06 | .047 |
| 24.00 | 0.47 | 0.39 | 0.74 | 0.27 | 1.04 | .045 |
| 24.17 | 0.48 | 0.39 | 0.74 | 0.26 | 1.02 | .044 |
| 24.33 | 0.48 | 0.38 | 0.74 | 0.26 | 1.00 | .043 |
| 24.50 | 0.49 | 0.37 | 0.74 | 0.25 | 0.99 | .042 |
| 24.67 | 0.50 | 0.37 | 0.75 | 0.25 | 0.96 | .040 |
| 24.83 | 0.50 | 0.36 | 0.75 | 0.24 | 0.95 | .039 |
| 25.00 | 0.50 | 0.36 | 0.75 | 0.24 | 0.94 | .038 |
| 26.00 | 0.54 | 0.31 | 0.76 | 0.21 | 0.81 | .031 |
| 27.00 | 0.57 | 0.28 | 0.78 | 0.18 | 0.69 | .026 |
| 28.00 | 0.61 | 0.25 | 0.79 | 0.16 | 0.59 | .021 |
| 29.00 | 0.63 | 0.23 | 0.81 | 0.14 | 0.50 | .017 |
| 30.00 | 0.66 | 0.21 | 0.82 | 0.13 | 0.43 | .014 |