Supplemental Information for "Terahertz magneto-optical response in ferromagnetic Fe-Co-Al alloys"

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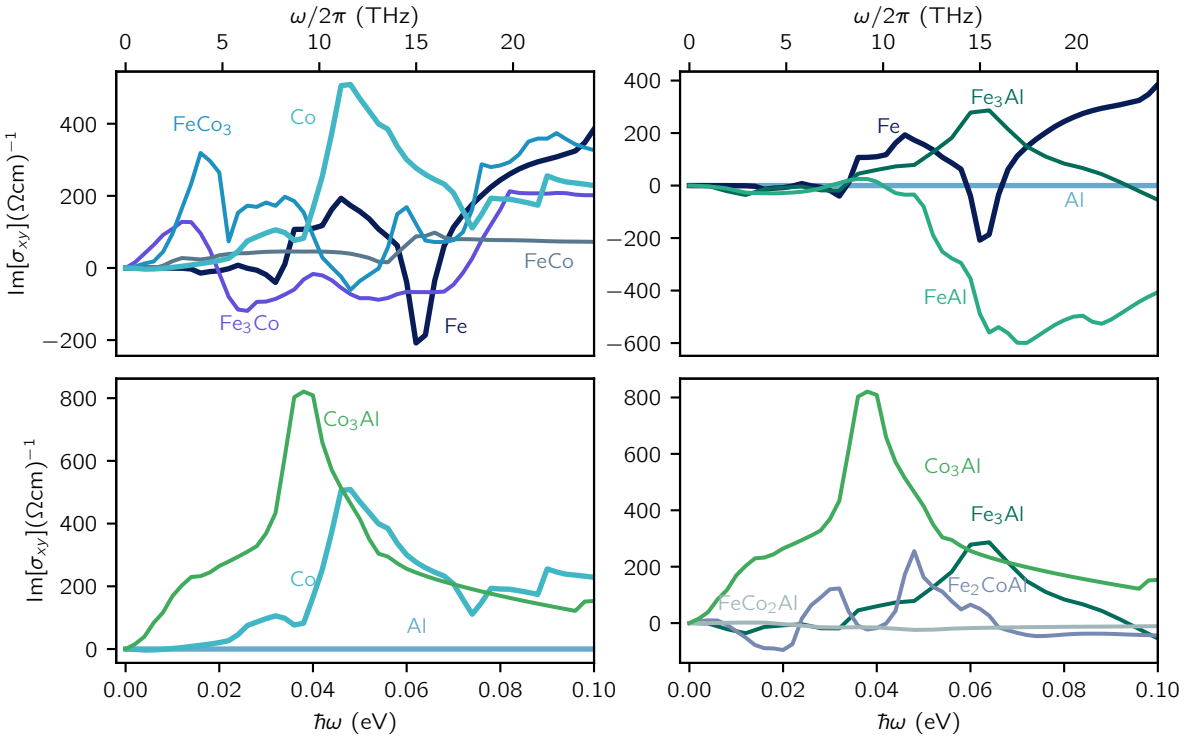

FIG. 1. Calculated imaginary part of σ_{xy} for Fe-Co-Al metals and alloys as a function of frequency ω. All conventions are the same as in the main text.

[1] M. Cazzaniga, L. Caramella, N. Manini, and G. Onida, Phys. Rev. B **82**, 035104 (2010).
[2] N. D. Mermin, Phys. Rev. B **1**, 2362 (1970).

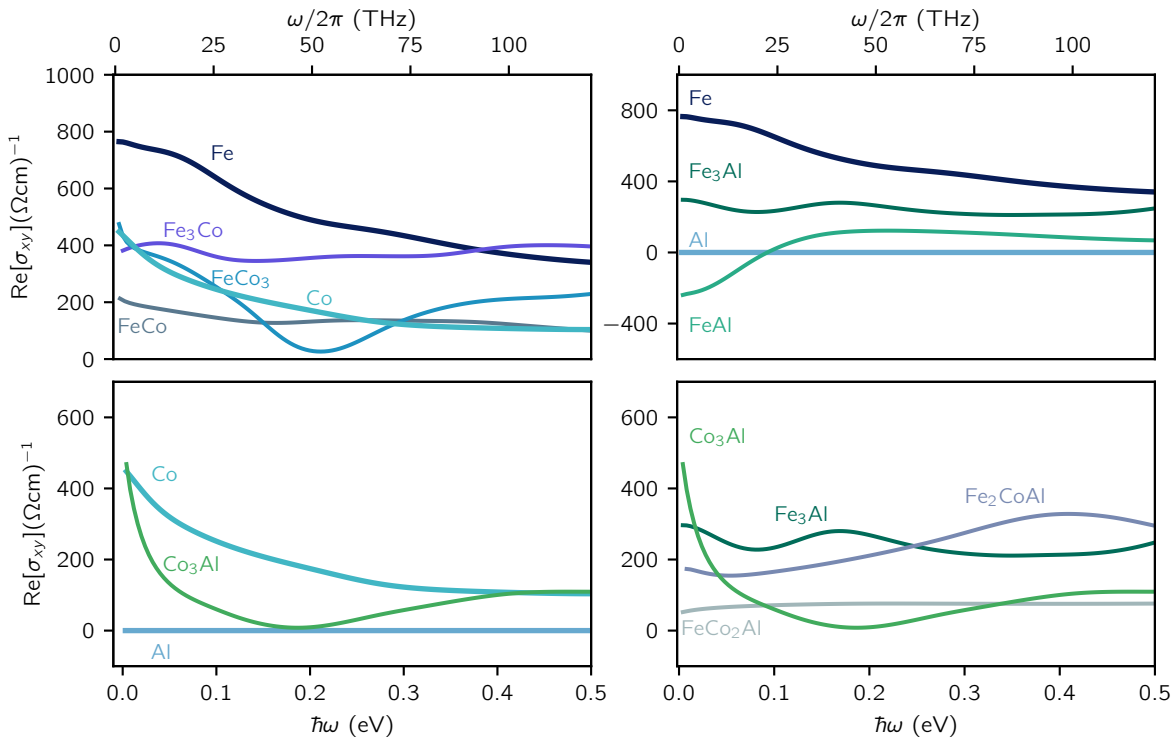

FIG. 2. Calculated real part of σ_{xy} for Fe-Co-Al metals and alloys with a simplified model that incorporates electron lifetime. The range of frequencies in this plot is larger than that in other parts of the manuscript. Frequencies go from 0 to 125 THz. We use model from Ref. 1 to approximately incorporate effect of electron lifetime into our calculation, as it is well known[2] that simply using $\omega + i\delta$ for finite δ leads to the wrong dependence of conductivity in metals at low frequencies. Following the model from Ref. 1 we replace $\lim_{\delta\to 0}(\ldots\omega + i\delta/2)^{-1}$ in our Kubo formula in the main text with $\sqrt{\omega(\omega + i\delta)}$ and we use a finite value, $\delta = 0.2$ eV that is close to the average inverse electron lifetime in Fe-Co-Al alloys.