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Title: Energy-loss function including damping and prediction of plasmon lifetime

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Highlight

- We present an approach to take damping into account of the energy loss function.
- We calculate the electron inelastic mean free path for Al, Si, Cu, and Au.
- We predict the values of damping and lifetime at low energies.
- Influence of damping is significant in the low-energy region.
- The damping value is not only energy dependent but also material dependent.

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