

**IMPACT Center SAB/Liaison meetings**  
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**Abstract**

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**First-principles predictions of resistivity in scaled interconnects**

We present *ab initio* calculations of ballistic conductance and electron-phonon scattering targeting new materials that can outperform current interconnect metals at nanoscale dimensions. In a high-throughput screen of 2000 metals, we identify candidates with the highest ballistic conductance (low resistivity x mean-free-path product) that corresponds to maximum scaling potential. We investigate electron scattering mechanisms in further detail for a few of these materials including MAX phases and topological semi-metals.