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A General Theory for Complete Destructive Interference in Molecular Electron Transport[1] MATTHEW REUTER, PANU SAM-ANG, Department of Applied Mathematics and Statistics and Institute for Advanced Computational Science, Stony Brook University — Destructive interference effects in electric current through molecules provide unconventional routes to designing very good insulating materials. Theories developed for predicting these effects rely on knowing aspects of the molecular structure and/or only consider particular ways for the molecule to couple with the electrodes. Herein we present a general theory for describing the existence and robustness of destructive interference effects. Our results also relate interference effects to the isolated molecules electronic structure, helping us further develop physical intuition for these effects. Specific examples will be discussed.

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