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**Electron-Impact Excitation Out of the Metastable Levels of Argon and Other Rare Gas Atoms<sup>1</sup>**

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In a typical low-temperature plasma, the primary mechanism for populating excited levels is electron-atom collisions. While the vast majority of atoms are typically in their ground state, the few atoms in long-lived metastable levels can also serve as targets of the incident electrons. Indeed, in a typical plasma the excitation rate out of the metastable levels into select upper levels can surpass the excitation rate from the ground state. I will review our group's measurements of the excitation cross sections out of the metastable levels of neon, argon, krypton, and xenon. In addition to their applications in plasma modeling, the study of these cross sections has also been interesting from a fundamental collision-physics perspective.

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