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Promoting a Core Electron to Fill a d-Shell: A Novel Threshold Law and Shape and Feshbach Resonances[1] R.C. BILODEAU, I. DUMITRIU, Western Michigan University and Lawrence Berkeley National Lab, N.D. GIBSON, C.W. WALTER, Denison University, N. BERRAH, Western Michigan Universtiy — Two new results emerging from inner-shell photodetachment of atomic negative ions will be presented, following studies in Pt^-. First, the d-wave form of the Wigner threshold law is observed for the first time in single-photon measurements. Second, single-vacancy valence shells are filled with a core electron, which would ordinarily be expected to result in stabilization of the core excited state, producing Feshbach resonances. However, we find that stabilization does not occur for some core excitations, dramatically demonstrating the importance of core-valence interactions.

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