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【3001】Nuclear Excitation by Electron Capture in Excited Ions

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A nuclear excitation following the capture of an electron in an empty orbital has been recently observed for the first time. The experiment remains particularly fascinating and unexplainable by state-of-the-art theory. So far, the evaluation of the cross section of the process has been carried out widely using the assumption that the ion is in its electronic ground state prior to the capture. We show that by lifting this restriction new capture channels emerge resulting in a boost of various orders of magnitude to the electron capture resonance strength.

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