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Orbital Electron Capture Rates in Extreme Astrophysical Environments[1] MATTHEW MARTIN, WILLIAM MCDONALD, KYLE LEACH, Colorado Sch of Mines — In an attempt to better understand EC decay rates in hot environments, we have developed a program to examine and parse all evaluated atomic and nuclear data. Taking into account the effects of ionization on accessible decay states and electron capture probabilities, half lives across the nuclear chart can be investigated without the need for theoretical estimates. Part of the ongoing project will include isolating stable isotopes that become unstable due to ionization and estimating their stability in these new environments. In addition, we hope to account for a thermal population of excited states to better simulate these environments. This should aide in the complete understanding of nuclear processes in these extreme astrophysical environments.

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