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Advances in atomic theory of heavy elements for neutron star merges

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Lanthanides and actinides play an important role in understanding of neutron star merger events. Calculating opacities for these heavy elements is a challenging task. Reliable benchmarks for atomic transition properties are urgently needed. I will report on recent advances in first-principle atomic theory of lanthanides and actinides and development of online portal for high-precision atomic data for needs of atomic, astrophysics, and plasma physics communities.