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Ab initio theory for electroweak properties of nuclei

Thursday, May 30, 2019 11:00 AM (30 minutes)

In this talk I will discuss recent advances which expand the scope of ab initio calculations to essentially all properties of light, medium-mass nuclei and beyon. When based on consistently derived two- and three-nucleon forces, as well as two-body currents, these powerful approaches allow first predictions of the limits of nuclear existence and the evolution of magic numbers far from stability. In particular I will focus on recent extensions to fundamental problems in nuclear-weak physics, including a proposed solution of the long-standing gA-quenching puzzle in beta decays, calculations of neutrinoless double-beta decay nuclear matrix elements, and WIMP-nucleus scattering cross sections relevant for dark matter direct detection searches.

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Session Classification: Session (Chair: M. Hirsch)