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Experimental Nuclear Level Densities at ELI-NP and IFIN-HH

Wednesday 26 March 2025 10:30 (30 minutes)

The ELI-NP facility in Romania will consist of two different types of beamlines: The high-power laser system and the high-brilliance γ-ray beams. Such γ-ray beams are very selective when used for exciting atomic nuclei, as the narrow bandwidth provides a very well-defined excitation energy window, and usage of polarised photons provides clean spin-parity selectivity for $J^P = 1^-$ states. This provides the European community with a unique opportunity to develop complementary methods for measurements of nuclear level densities in model-independent ways with a well-defined ensemble of states based on spin and parity. During the construction period of the ELI-NP γ-ray beam facility, we have undertaken a complementary evaluation of these methods using well-established charged-particle methods for nuclear level densities at the Tandem accelerators of IFIN-HH. Here we will present the status of ELI-NP facility, and our ongoing and planned work on nuclear level densities, with a special focus on how we can contribute to the topical CRP.

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