Nuclear Seminar

Shell model of nuclear level densities and applications in nuclear astrophysics

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Monday

May 4

4 P.M.

Rm 124 NSH

Nuclear level densities provide important information regarding the nuclear dynamics. In particular, they can be used to predict nuclear compound cross sections and reaction rates, which are of large interest in nuclear astrophysics. We developed a methodology of calculating the the spin- and parity-dependent nuclear level density using the interacting shell model, which takes into account the effect of the residual interaction among nucleons. These new techniques are based on nuclear statistical spectroscopy, but calculate spin- and parity-projected moments of the nuclear shell model Hamiltonian. In my talk I will review the model we use, and I will present few applications that could be relevant for the rp-process.

Refreshments served prior to the seminar in Rm 124.

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