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Nuclear Level Densities and Photon Strength Functions measurements

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The Oslo Method is a unique technique to extract simultaneously the nuclear level density (NLD) and photon strength function (PSF) from excitation energy tagged gamma-ray spectra. These nuclear properties are important inputs in cross section calculations and can be used to constrain neutron capture cross sections for nuclei, where these cannot be measured directly. I will give an overview of the Oslo-method, and present our latest result on level densities and photon strength functions.
For some nuclei we observe a pygmy resonance and other a scissors resonance on the tail of the Giant Dipole Resonance, and for many nuclei a low energy enhancement of the PSF was observed. This low energy enhancement has been shown to strongly increase the neutron capture rates if also present for neutron rich nuclei. To reach these more neutron rich nuclei, two new experimental approaches have been developed: The beta-Oslo method and the Oslo method in inverse kinematics. I will also present some recently published results from Oslo method in inverse kinematics experiments on: Kr isotopes, performed at iThemba LABS and 67Ni from an experiment performed at HIE-ISOLDE, CERN, the later being an important for the i process.

Primary authors: SIEM, Sunniva (University of Oslo); Dr INGEBERG, Vetle Wegner (Department of Physics, University of Oslo); Prof. WIEDEKING, Mathis (Lawrence brekely laboratory)

Presenter: SIEM, Sunniva (University of Oslo)

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