

# Service de Physique Nucléaire



## Séminaire

le jeudi 30 octobre 2008 à 11h

CEA-Saclay SPhN, Orme des Merisiers Bât. 703 Salle 135

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### Level densities and gamma-ray strength functions

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*Université d'OSLO*

The level density and radiative strength function are fundamental nuclear properties and important input parameters in large network calculations of the nucleosynthesis of heavy elements. The Oslo group has developed a technique to extract simultaneously the level density and radiative strength function from the same experiment. After finding the level density as a function of excitation energy, the entropy is known and we can explore thermodynamic properties of the nucleus such as the microcanonical temperature and heat capacity. A small (pygmy) resonance in the strength function has been observed at around 3 MeV in several deformed rare earth nuclei; the resonance vanishes for the spherical Sm nuclei, as expected, since the origin of this resonance is thought to be the scissors mode. An unexpected enhancement of the gamma-strength below 4 MeV in the total radiative strength function of Fe, Mo, V, Sc (and preliminary in Ti) isotopes has been observed. This enhancement is presently not understood and remains a challenge for theoretical models.

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Le café sera servi 10 minutes avant, en salle 125  
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