

## **The E1 gamma-decay at zero and finite temperature : pygmy states and isospin mixing at finite temperature**

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This talk presents an overview of two types of experimental studies concerning the nuclear dipole response.

Experiments were made on several nuclei using inelastic scattering of  $^{17}\text{O}$  and measuring gamma decay. These works were intended to shed light on the nature of the low lying dipole states. From the measured differential cross sections, analyzed using microscopically calculated form factors, the isoscalar strength around the particle binding energy was deduced for stable neutron rich nuclei. The results can be interpreted as due to neutron skin oscillation.

The measurement of the gamma decay in the hot  $^{80}\text{Zr}$  nucleus was made to learn on isospin mixing. The results, obtained using two different reactions, leading to entry states for the CN with different isospin, are compared with predictions and data from beta decay.