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On the Nature of the Pygmy Dipole Resonance studied in (□,□'), (p,p') and (□,□'□) Experiments

A concentration of electric dipole strength around and below the neutron separation energy is nowadays known to be common in most medium to heavy mass nuclei. While a first interpretation of this so-called Pygmy Dipole Resonance (PDR) was connected only to an oscillation of the nuclear neutron skin, the combination of complementary experiments over the past two decades has uncovered much deeper details of the excited states contributing to the PDR region. While real photon scattering (□,□') experiments are sensitive to the product of the electric dipole strength and the □-decay behavior of each resolvable state, different hadronic scattering experiments at medium to high energies and at forward angles are sensitive more to the location of the excitation within the nucleus or the isospin character of excited states. On the other hand, high energy inelastic (p,p') proton scattering at forward angles does not yield state-by-state information, but allows to determine the integrated electric dipole strength completely decoupled from the □-decay behavior. Additional experimental probes have been established in recent years and cross reading results from all experiments can be challenging, yet very fruitful. Therefore, this contribution will try to give an overview of the insights gained by comparing such experimental efforts and their theoretical comprehension.

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