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The low-lying electric dipole strength in nuclei: the role of deformation

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The electric dipole response in nuclei is characterised at high energies by the isovector Giant Dipole Resonance (IVGDR) and, for neutron-rich nuclei, by the Pygmy Dipole Resonance (PDR) around the neutron separation energy. Even though these two excitation modes have been extensively studied, some of their characteristics are still not understood. This talk will concentrate on the discussion of the role of deformation in the excitation of the PDR. Two independent experiments were performed to study the electric dipole response of the quadrupole-deformed 154Sm nucleus. The inelastic scattering of 120-MeV alpha particles was studied at iThemba LABS while 295-MeV protons were used at RCNP. The first comparison of the isoscalar and isovector responses of the a the deformed nucleus will be presented.

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