

Nuclear Structure Physics at the Darmstadt superconducting electron linear accelerator S-DALINAC *

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The Institut für Kernphysik of Technische Universität Darmstadt operates the S-DALINAC, an in-house electron accelerator up to a maximum electron energy of 130 MeV in cw mode [1]. Electron beams and photon beams, produced by bremsstrahlung processes [2], are available to the experimentalists.

Electron scattering experiments can be performed at two different electron spectrometers, one having high energy resolution ($\Delta E < 30$ keV, LINTOTT [3]) and the other one having large acceptance for facilitating observation of exclusive coincidences in (e,e'x) reactions (QCLAM [4]). Topics of electron scattering investigations include Coulomb-break up of light nuclei, spin-resolved level densities as well as collective and exotic nuclear excitation modes [5-8].

Photon scattering experiments address the nuclear dipole response. Two experimental sites are available: A high intensity continuous-energy bremsstrahlung beam with photon intensities up to 10^6 photons per (keV·s·cm²) and a tagged photon beam with an energy resolution of 25 keV at 10 MeV photon energy. Recent studies were concerned, *e.g.* with the Pygmy resonance of semi-magic nuclei [9] or the fine structure of the dipole response of doubly-closed shell nuclei [10,11].

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