Großes Physikalisches Kolloquium an der Universität zu Köln

Prof. Dr. Alexandre Obertelli
Technische Universität Darmstadt

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16^{30} Uhr
HS III

Neutron excess in atomic nuclei

Neutron excess in atomic nuclei have challenged our understanding of nuclear structure and the properties of nuclear matter for decades: the existence of neutron droplets have been looked for 60 years, the discovery of neutron halos in neutron drip line nuclei have impulsed radioactive beam physics, nucleus with neutron excess show a shell structure different from the one of stable nuclei, while the spatial distribution of the neutron excess directly connects to the nuclear equation of state at saturation density. Rare isotope facilities have given access to the neutron-rich side of the nuclear landscape. This colloquium will focus on few of the most recent experiment results in the field: the first observation of an interacting free four-neutron system, the discovery of the 28O unbound system (8 protons, 20 neutrons), as well as the description of the new experiment PUMA (antiproton Unstable Matter Annihilation) at CERN aiming at using antimatter to investigate neutron skins at the nuclear surface.