Service de Physique Nucléaire

Séminaire

le vendredi 8 décembre 2006 à 11H

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

Charge and matter distributions and form factors of neutron-rich nuclei

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Results of charge form factors calculations for several unstable neutron-rich isotopes of light, medium , and heavy nuclei (He, Li, Ni, Kr, Sn) are presented and compared to those of stable isotopes in the same isotopic chain. For the lighter isotopes (He and Li) the proton and neutron densities are obtained within a microscopic large-scale shell model, while for heavier ones Ni, Kr, and Sn the densities are calculated in deformed self-consistent mean-field Skyrme HF+BCS method. The proton densities are compared to matter densities together with their rms radii and diffuseness parameter values. Whenever possible comparison of form factors, densities and rms radii with available experimental data is also performed. Calculations of form factors are carried out both in plane wave Born approximation and in distorted wave Born approximation. These form factors are suggested as predictions for the future experiments on the electron-radioactive beam colliders where the effect of the neutron halo or skin on the proton distribution in exotic nuclei is planned to be studied and thereby the various theoretical models of exotic nuclei will be tested.

Reference:
A.N. Antonov, D.N. Kadrev, M.K. Gaidarov, E. Moya de Guerra, P. Sarriguren, J.M. Udias, V.K. Lukyanov, E.V. Zemlyanaya, G.Z. Krumova,
Phys. Rev. C. **72**, 044307 (2005).

Le café sera servi 10 minutes avant

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