乞掲示

理化学研究所原子核グループコロキウム　*2001. 11. 12*

講師：　**Prof. Georgios Lalazissis**

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題目：　Relativistic Hartree-Bogoliubov (RHB) description of nuclei close to the particle drip lines

∗ The seminar will be given in *English.*

日時：　2001年 11月 12日 (Mon.)　15:00 –

場所：　RIKEN Main Bldg. 1F Seminar Room

Abstract

Models based on the relativistic mean field approximation provide a microscopically consistent and yet simple and economical description of the many body nuclear problem. With very few adjsuted parameters it has been possible to describe many nuclear structure phenomena, not only in nuclei along the valley of β -stability, but also in exotic nuclei with extreme isospin values and close to the particle drip lines.
In this talk we will discuss ground state properties of neutron-rich N $\approx$ 28 nuclei described in the framework of the Relativistic Hartree Bogoliubov (RHB) theory, where the model predicts a strong suppresion of the spherical shell gap at N=28 for very neutron rich nuclei. Next, we will apply the relativistic random phase approximation, in the analysis of the evolution of the isovector dipole response in nuclei with a large neutron excess. The analyis reveals the dynamics of the dipole pygmy resonances in medium heavy neutron rich nuclei. We will also report on ground-state properties of very neutron rich light nuclei with $4 \leq Z \leq 13$. We will compare our findings with very recent experimental data.
In the proton rich side, we will apply the theory to the description of the proton drip-line in the regions $31 \leq Z \leq 49$, $51 \leq Z \leq 55$ The ground states properties (g.s deformations, one proton separation energies,e.t.c) are studied at and beyond the proton drip. Excellent agreement is found with recently discovered ground state proton emitters. Finally, we will discuss the proton drip below Z=49, where the astrophysical rapid proton capture process reaches the proton drip and has waiting points.

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