乞掲示

理化学研究所原子核グループコロキウム　*2001. 11. 29*

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題目：　RADIOACTIVE ION BEAMS IN DUBNA - THE DRIBs PROJECT

∗ The seminar will be given in *English.*

日時：　2001年 11月 29日 (Thu.)　14:00 –

場所：　RIKEN Main Bldg. 2F Seminar Room

Abstract

The Dubna radioactive beam factory (DRIBs) will make use of two possibilities for producing secondary beams of radioactive nuclei . During the first phase of the project (Phase I) the possibility for obtaining radioactive nuclei in fragmentation reactions of stable nuclei, accelerated by the cyclotron U400M to intermediate energies (∼50 MeV/A), will be realized. The fragmentation products, obtained in a special ion source, will be converted into single-charged ions, which after transportation to the second cyclotron (U400) will be accelerated up to energies of 20-25 MeV/A. This method will allow obtaining mainly beams of light radioactive nuclei with Z $\sim$ 30 with intensities up to 108 pps (e.g. nuclei such as ^{6}He). In the second phase of the project (Phase II) it is supposed to produce and accelerate radioactive neutron-rich nuclei in the mass region 80 $<$ A $<$ 140. This mass region corresponds to the fragments of low-energy fission of heavy nuclei. For this reason use will be made of the photofission of ^{238}U. When the mentioned above parameters of the beam and target are realized, one can get as much as 10^{11} fission fragments/second. When the efficiency of the ion source and the transport system amounts to some 20-30 % it is possible to obtain beams of fission fragments in the region of Kr and Xe with an intensity of up to 10^{9} s^{-1}. For the isotopes situated at the "tails" of the fragment mass distribution (for instance, for ^{77}Ni, ^{78}Ni) the expected yields are 10^{5}-10^{3} s^{-1}. The physics program using radioactive ion beams in Dubna is also discussed.

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