乞掲示

理化学研究所原子核グループコロキウム　*2002. 10. 01*

講師 ： Prof. Sigurd Hofmann

(GSI, Darmstadt, Germany)

題目 ： Synthesis and Properties of Superheavy Elements

∗ The seminar will be given in *English.*

日時 ： 2002年 10月 01日 (Tue.)　15:00 –

場所 ： RIKEN Main Bldg. 1F Seminar Room

Abstract

The nuclear shell model predicts that the next doubly magic shell-closure beyond ^{208}Pb is at a proton number Z =114, 120, or 126 and at a neutron number N = 178 or 184. The outstanding aim of experimental investigations is the exploration of this region of spherical 'SuperHeavy Elements' (SHEs). Experimental methods are described which allowed for the identification of elements 107 to 112 at GSI, Darmstadt. Also presented is the status of recent search experiments for elements up to 118. Data are shown, which were obtained on the synthesis of elements 112, 114, and 116 at JINR, Dubna, in investigations of hot fusion reactions using actinide targets. The decay data reveal that for the heaviest elements, the dominant decay mode is alpha emission, not fission. Decay properties as well as reaction cross-sections are compared with results of theoretical investigations. Finally, plans are presented for the further development of the experimental set-up and the application of new techniques. At a higher sensitivity, the exploration of the region of spherical SHEs now seems to become feasible, more than thirty years after its prediction.

∗ Host researcher : K. Morita (RIKEN)

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重イオン核物理研究室　福田 直樹　柳澤 善行

セミナー係連絡先

(email)　seminar@rarfaxp.riken.go.jp

(FAX)　048–462–4464

(WWW)　http://rarfaxp.riken.go.jp/~seminar/