



独立行政法人理化学研究所 仁科加速器研究センター
第35回RIBF核物理セミナー

RIKEN Nishina Center for Accelerator Based Science
The 35th RIBF Nuclear Physics Seminar

Superheavy Element Chemistry at GSI - Past, Present and Future

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Superheavy elements have been synthesized and chemically characterized one-atom-at-a-time up to element 108. Presently, the quest for identification and investigation of element 112 is one of the hottest topics in this field. The transactinide elements 104 to 108 are members of group 4 to 8 of the Periodic Table and element 112 belongs into group 12. For some of these elements detailed chemical properties have been revealed which show stunning deviations from simple extrapolations within their respective group while others exhibit great similarities with their lighter homologues elements. All presently known chemical properties of seaborgium (Sg, element 106) - the heaviest element whose behavior was investigated in aqueous solution - and hassium (Hs, element 108) were obtained in experiments performed at the GSI in large international collaborations. Recently, the highly efficient and very clean separation of Hs was applied for nuclear studies of various Hs nuclides investigating their cross section and their nuclear decay properties in the region of the N=162 neutron shell. To overcome certain limitations of the presently used on-line chemical separations the new TransActinide Separator and Chemistry Apparatus (TASCA) - with a gas-filled recoil separator as a front-end tool - was designed and built at the GSI in a collaborative effort. Presently in its commissioning phase, TASCA shall be a key instrument for a big leap into quantitatively and qualitatively new experiments in the region of superheavy elements.

Oct , 20(Fri), 2006 13:30-
RIBF Conf. Hall, RIBF Bldg. 2F

The seminar will be given in English.
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