



独立行政法人理化学研究所 仁科加速器研究センター
第107回RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 107th RIBF Nuclear Physics Seminar

Recent and future research on superheavy elements at Mainz/GSI

Prof. Jens Volker Kratz

(Institute for Nuclear Chemistry, University of Mainz, Germany)

A report will be given on the synthesis of $^{288,289}114$ in the $^{244}\text{Pu}(^{48}\text{Ca},3-4n)$ reaction at the new gas-filled separator TASCA in the high-transmission mode where 13 decay chains were observed. Detection of $^{288,289}114$ also in the small-image mode was a prerequisite for a chemistry experiment with element 114 behind TASCA using the gas-chromatography- and detection system COMPACT. In this experiment, we were able to show that element 114 is gaseous and deposits on Au at room temperature. Future research with allotted beam-time includes another chemistry experiment with 114 in which the elements Pb, Rn, 112, and 114 will be produced simultaneously. We also are preparing an experiment at TASCA in the small-image mode in conjunction with a compact spectroscopy setup, TAsca Small Image mode Spectroscopy (TASISpec), which provides multi-coincidence options and unprecedentedly high α -X ray coincidence efficiencies. Among the goals of an experiment producing the odd-even isotope $^{287}115$ in the $^{243}\text{Am}(^{48}\text{Ca},4n)$ reaction is the observation of K- and/or L-X rays following internal conversion in the course of the decay of excited states which are likely to be populated via α decay for odd-even isotopes. Another future experiment is a search for element 120 in the $^{249}\text{Cf}(^{50}\text{Ti},xn)$ reaction. The newly founded Helmholtz Institute Mainz (HIM) will be introduced and the research projects associated with HIM.

Oct. 28(Thu), 2010 13:30-
RIBF Hall, RIKEN

The seminar will be given in English.

Contact: RIBF Nuclear Physics Seminar Organizer
seminar@ribf.riken.jp
<http://ribf.riken.jp/~seminar>