

# The Discovery of Super-Heavy Element of Atomic Number $Z=113$ Nihonium and Beyond\*

Kosuke Morita<sup>1</sup>

*Department of Physics, Faculty of Science, Kyushu University, Motooka 744, Nishi-ku, Fukuoka, 819-0395 Fukuoka, Japan*

*<sup>1</sup>RIKEN Nishina Center, 2-1 Hirosawa, Wako, 351-0198 Saitama, Japan*

*E-mail: [morita@ribf.riken.jp](mailto:morita@ribf.riken.jp)*

*(Received December 17, 2016)*



Experimental efforts and the achievements by the Super Heavy Element Research Group in RIKEN are presented in the lecture, including a new discovery of  $Z=113$  element. Eventually, this element has been named officially as Nihonium (Nh), proposed by our group, in November 2016. A new effort for possible new elements  $Z=119$  and  $120$  is also presented.

The extensive experimental study started 2002 when the main instrument GARIS was set in the RILAC facility in 2001. The experimental setup is shown in Fig. 1. The experiment aimed at discovering the 113<sup>th</sup> element using the  $^{209}\text{Bi}(^{70}\text{Zn}, n)^{278}113$  reaction.

---

\* The manuscript was prepared by K. Morimoto and S. Kubono.