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### **Comments on the acquisition of naming rights to element 113**

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I am delighted to report that thanks to its dedicated efforts, a group at RIKEN has been granted formal recognition for having achieved the synthesis and discovery of element 113. This is an important day indeed in the history of science, as the discovery rights of three other elements—115, 117, and 118—were also granted at the same time to joint groups from Russia and the United States, meaning that the seventh row of the periodic table has now been completely filled. Following the recognition, the RIKEN-led group has been given the right to suggest a name for element 113, which will be added to periodic tables around the world.

The existence of chemical elements, which are the foundation of all matter, has been an object of philosophical and scientific interest since ancient times, and human beings have carried out both theoretical research to determine the structure of atoms as well as experimental research to discover new elements. In the 20th century, nuclear physicists from different places in the world began competing to create atomic nuclei that had never existed before. As is true for other elements discovered earlier, claims for the discovery of element 113 were made by groups in various countries based on their own dedicated efforts and technical prowess, within an increasingly competitive environment, and an international working group made the decision based on a strict review of those claims.

Japan has a long tradition of research in nuclear physics, as is well demonstrated by the laboratory of Hantaro Nagaoka in the prewar period, and it has nurtured many prominent researchers. At RIKEN, important theoretical work in this area was conducted by such scientific greats as Yoshio Nishina, Hideki Yukawa, and Shinichiro Tomonaga, while on the experimental side, RIKEN became home to Japan's first cyclotron, which functioned as an important pillar for nuclear physics research, in 1937. In the years that followed and with much arduous work, RIKEN developed the ability to design the world's best-performing accelerators, thereby propelling itself to a leading position in international nuclear physics. With this background, RIKEN was able not just to discover element 113, but also to collect additional data on element 112, thereby giving extra credibility to the discovery claims of the German Center for Heavy Ion Research, and further contributing to advances in nuclear physics. Needless to say, numerous years of dedicated effort by researchers and technicians in industry and elsewhere provided the foundation for this.

I would like to express my deep admiration for the efforts of Dr. Kosuke Morita and his team. It is believed that all the elements produced by nature were created by the Big Bang, in the furnaces inside stars, and in supernova explosions. With the discovery of element 113, RIKEN has taken a step into an “expansion” of the universe resulting from humanity’s production of superheavy elements that even supernova explosions cannot synthesize. I am proud to know that Japan and RIKEN have produced something that will be added to the list of the things that make up the universe. The Japanese people share in this pride, and I hope the acknowledgement of Japan’s role in the discovery of element 113 will stimulate greater interest in science among people in general, and children in particular.