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（For JSPS Fellow）

Form B-5

Date（日付）
27/07/2016 （Date/Month/Year：日/月/年）

Activity Report -Science Dialogue Program-

（サイエンス・ダイアログ事業 実施報告書）

- Fellow's name（講師氏名）: Gabor Gyula Kiss （ID No. P 14 808 ）

- Participating school（学校名）: Shizuoka Prefectural Numazu higashi High School

- Date （実施日時）:18/07/2016 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: （in English） From nuclei to stars:
Can nuclear physics help to understand the fate of massive stars?

（in Japanese）原子核から星々に至るまで:
原子核物理学によって、重い星の運命を理解することはできるのだろうか？

- Lecture summary（講演概要）: Please summary your lecture 200-500 words.

The aim of nuclear astrophysics is to explain the origin of the chemical elements present in the Universe. Some of these elements are present in the Earth' crust or atmosphere others are important for life (e.g. building up our bodies). Other elements are key ingredients for modern industry, telecommunication, research, etc. I showed this through the example of an iPhone.

A large fraction of the heavy elements were synthesized during the explosion of the Supernovas. Various tools are available for the study of the Supernova explosions - we can now measure the gravitational waves (the first one was measured at the end of 2015!) or detect the emitted neutrinos. This 2nd one is very important in Japan since the related research lead to two Nobel prizes (2002, M. koshiba and 2015, T. Kajita). I briefly introduced these efforts.

Understanding the synthesis of the heavy elements is equal with understanding the nuclear physics processes taking place during the explosion. However before discussing this I explained the role of the four fundamental forces (gravitation, electromagnetic force, strong and weak force) through simple examples. At the RIKEN Nishina Center using the superconducting cyclotron accelerators and separators we can produce and study the relevant isotopes. This helps us understanding the synthesis of the chemical elements. I showed the experimental devices and gave brief insight into my work.

Finally, a new chemical element was discovered in Japan (and named as Nihonium a week before the lecture) -the accelerators used for this work are located in the lab I'm working it - I brief mentioned this and present few details.

- Language used（使用言語）: English

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- Lecture format（講演形式）:

◆Lecture time（講演時間） 80 min（分）, Q&A time（質疑応答時間） 80 min（分）

◆Lecture style（ex.: used projector, conducted experiments）

（講演方法（例：プロジェクター使用による講演、実験・実習の有無など））

Projector

◆Interpretation（ex.: assistance by accompanied person, provided Japanese explanation by yourself）（通訳（例：同行者によるサポート、講師本人による日本語説明））

Accompanied person

◆Name and title of accompanied person（同行者 職・氏名）

Daisuke Suzuki (Researcher, Riken Nishina Center)

◆Other note worthy information（その他特筆すべき事項）:

- Impressions and opinions from accompanied person（同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。）:

This was a nice and exciting opportunity to interact with young generations in the local society. I was very impressed by the level of enthusiasm and understanding expressed by many students during the Q&A session during and after the lecture. I am also grateful to the hospitality of the high school staff. I am hoping that the JSPS will keep supporting the Science Dialogue to give such fruitful opportunities to as many foreign researchers as possible.