

(For JSPS Fellow)

Form B-5

Date (日付)  
14/10/2014

**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) : Lality-Kovács Tünde (ID No. P12806)
- Participating school (学校名) : Junior and Senior High School at Komaba, University of Tsukuba
- Date (実施日時) : 27/9/2014 10:30-12:10
- Lecture title(講演題目: (in English) Hungary, a small country in central Europe  
Catalan' s conjecture, a famous problem of  
number theory

(in Japanese) 中央ヨーロッパの小さい国、ハンガリー  
整数論の有名な問題、カタラン予想

- Lecture summary (講演概要) : Please summary your lecture 200-500 words.  
The first half of my talk was about my home country, Hungary. I talked about Hungary' s geography, demography, I listed a few interesting inventions made by Hungarians. I showed the cuisine, architecture, nature and special products of Hungary through photos and explanations about them. Then I introduced the most famous Hungarian mathematician whose life has been captured in many different ways. For example there is a Japanese novel with the title 博士の愛した数式 that is based on his life.  
The topic of the second half of my lecture was Catalan' s conjecture. The conjecture was a famous open problem of number theory for more than 150 years until it was solved very recently. Therefore I started the explanation from the meaning and main goal of number theory. I showed a 5-step procedure that is usually followed when dealing with a number theoretical problem. I gave the definition of perfect powers and started to consider a concrete example. We followed the first 4 steps of the previously mentioned 5-step long procedure together with the students. From our easily understood problem, we arrived at the famous Catalan' s conjecture. The last step should have been proving the conjecture. The complete proof of the conjecture is more than 100 pages and requires special knowlegde of many different research areas in number theory therefore I could not show it to the students. However, I brougth a book that contains the history and the proof of the conjecture that I showed them. I think they could feel the deepness and difficultness of solving such a number theoretical problem. In the end I pointed out to them that there are still a lot of open questions related to Catalan' s conjecture and encouraged them to study with passion so that they will also have the chance to become a famous mathematican who solved some interesting problem.

- Language used (使用言語) : English
  
- Lecture format (講演形式) :
  - ◆Lecture time (講演時間) 80 min (分), Q&A time (質疑応答時間) 5 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))  
Lecture by rojector
  - ◆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))  
assistance by accompanied person
  - ◆Name and title of accompanied person (同行者 職・氏名)  
Professor Noriko Hirata-Kohno, Prof. Nihon University
  - ◆Other note worthy information (その他特筆すべき事項) :  
I involved the students to participate actively in my lecture by asking them some questions that they could think about and calculate the solutions and share their answers with the whole class
  
- 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。)