

(For JSPS Fellow)

Form B-5

Date (日付)

23/10/2015 (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): Soma Purkait (ID No. P 14319)
- Participating school (学校名): Fukuoka Prefectural Meizen High School
- Date (実施日時): 20/10/2015 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) A Journey through Number Theory  
 (in Japanese) 数論の旅
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

As the famous mathematician Gauss said "Mathematics is the queen of sciences and number theory is the queen of mathematics", in this talk I attempted to look at some of the topics in number theory through historic perspective and how these led to modern mathematics and sciences. In particular, I talked about certain important contributions of Indian mathematics, including how Fibonacci numbers were actually studied by Pingala almost 1000 years before Fibonacci in connection with Sanskrit Poetry, introduction of decimal number system and zero by Aryabhata and Brahmagupta and about famous Pell-Fermat equations which were studied and solved by Bhaskara II using Chakravala method almost 600 years before Fermat. I also talked about Ramanujan and his famous tau function which is an example of modular forms and famous Ramanujan's conjecture and its connection with Japanese school of Mathematics. I introduced the oldest unsolved problem in Mathematics "the Congruent Number Problem" and its connection with Fermat's last theorem. I presented a theorem which shows the connection of congruent number problem to certain Elliptic curves and therefore relates it to one of the millennium prize problems, Birch and Swinnernton-Dyer (BSD) Conjecture. I ended the talk by presenting them Tunnell's beautiful solution to this problem provided BSD is true.

- Language used (使用言語): English
- Lecture format (講演形式):
- ◆Lecture time (講演時間) 60 min (分), Q&A time (質疑応答時間) 10 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 (PowerPoint Presentation)

- ◆ 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)

Ms. Mika Sakata

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

None

- 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。):

The following is opinion of Ms. Mika Sakata :

日本語の補助がどの程度必要かを知る方法があると良いと感じました。