

(For JSPS Fellow)

Form B-5

Date (日付)

29/06/2015 (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): Timothee NICOLAS (ID No. P14728)
- Participating school (学校名): Fukui Prefectural Wakasa High School (Obama-city, Fukui)
- Date (実施日時): 19/06/2015 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) Nuclear fusion : A big challenge of the 21st century
(in Japanese) 核融合: 21 世紀のチャレンジ
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

In this lecture, I talked to the students about the big energy challenge that humanity will be facing in the 21st century and later, and how we would like to solve it by using energy from controlled fusion reactions.

In a first small part, I presented the typical orders of magnitude of energy and power of different techniques to produce energy, compared to everyday life situations, such as the power emitted by a body or the energy obtained by eating an apple. This made the students realize how large our energy needs are. I explained the notion of oil peak and climate change, and why it is a very serious issue, in order to introduce what could make humans independent of fossil fuels in the future : nuclear fusion.

I explained the basic principle of fusion using self-made short physics videos to present the concept of temperature, fusion reaction, confinement of charged particle in a magnetic field. I showed a real plasma using a plasma ball. This was very interesting for the students because many had never seen a plasma. They gathered around the plasma ball and could touch it.

Finally I explained the notion of instability and why it prevents us from reaching our goal, and how studying it could help us solve the problems. It allowed me to give them a small insight into what research looks like everyday for me. I finished by telling them the qualities I think are required to do research.

- 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) 25 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))

I used a projector and showed a plasma ball

- ◆ 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))

When the English explanation was not sufficient, I provided some explanation in Japanese. On some occasions, 市口先生 provided more detailed explanations in Japanese, which seemed very helpful for the students

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

核融合科学研究所 教授・市口勝治

- ◆ Other noteworthy 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。):

大変、有意義な事業であると感じました。高校生たちにとっては、外国人研究者とじかに接する機会があるのは、非常に刺激的ではないかと思います。一方、発表する側からすると、どの程度の予備知識を仮定して準備すればよいのかが、難しいところだったと思います。できるだけ、最先端の話をしたところではありますが、全く予備知識のないところから話を始めると、あまりに時間がかかりすぎることとなります。実際、Nicolasさんは、自分の実際の研究内容のかなり手前のレベルまでのところで終わりにしていました。それでも、高校生たちにとっては、少し難しかったようです。しかし、高校生たちが、何か面白そうなことやっているんだな、という気になってくれていれば、成功ではないかと思っています。

Must be typed