

(For JSPS Fellow)

Form B-5

Date (日付)

05/11/2013 (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): COMBE Emmanuel (ID No. P13709)

- Participating school (学校名): Aichi Prefectural Okazaki High School

- Date (実施日時): 28/10/2013 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): (in English) Producing electricity by recovering waste heat via thermoelectric conversion

(in Japanese) ~熱電変換~廃熱を電気に変える

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

During the first hour of the lesson, I started by briefly introducing myself and giving a general description of my native country, France. During this first part, I also detailed to the High School students my motivations for becoming a scientist and the different studies I followed in France for that purpose. I also insisted on the necessity of English speaking/reading in the different fields of our research activities. I finally concluded this first hour by explaining to the students why I decided to pursue my scientific work in Japan.

The second part of the lecture was focused on describing to the students my research activities. For that purpose, and as my research activities concern the preparation of materials for electrical energy generation, I started by an important description of the different problems concerning the production of energy in the world on this 21st century (problem of energy sources decrease, global warming through greenhouse effect,). Then, my research dealing with the preparation of thermoelectric materials, a large description of the thermoelectric effect (which allows the direct transformation of a heat source into an electrical current without carbon dioxide production) and the different applications of thermoelectric generators have been shown. During this, an experiment showing the generation of electrical energy by applying a temperature difference on a thermoelectric generator was realized. Finally, I described to students in a simple manner the different activities of my research work at the National Institute of Advanced Industrial Science & Technology laboratory in Osaka. For the last part of the lesson, I present to the students some of the measurement apparatus which are used for investigating the properties of thermoelectric materials in research laboratories.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 120 (分), Q&A time (質疑応答時間) 20 (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))

Powerpoint file (projector + screen), experiment conducted (generation of electrical energy by applying temperature difference on a thermoelectric generator)

◆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))

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

No accompanied person

◆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。)