

(For JSPS Fellow)

Form B-5

Date (日付)

15/01/2018 (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): Wenjing Meng (ID No. 16337)

- Participating school (学校名): Gunma Prefectural Kiryu High School

- Date (実施日時): 13/01/2018 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Molecular Machines (分子機械)

- Name and title of your company (同行者 職・氏名)

Lecturer Dr. SATO Hiroshi

- Lecture format (講演形式):

◆Lecture time (講演時間) 60 min (分), Q&A time (質疑応答時間) 30 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))

A projector was used for the talk. An experiment was carried out at the end of the talk.

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

There are three parts of the talk.

Part 1: Most advanced research: introduction to molecular machines.

Firstly, the definition and the size of molecular machines were explained. As an example of natural molecular machines, kinesin was introduced. The fact that the work on the design and synthesis of artificial molecular machines has been awarded the Nobel Prize in Chemistry in 2016 was mentioned. Catenanes and rotaxanes, the two special interlocked structures that have been used to create molecular machines were particularly emphasized. Then Prof. Sauvage's templated-synthesis of catenanes, Prof. Stoddart's rotaxane-based molecular switch and Prof. Feringa's nanocar were introduced.

Part 2: Basic story of my research content.

The synthesis, structural features and gas absorption property of metal-organic frameworks were introduced. One of the current research challenges in this field was also discussed.

Part 3: My story as a researcher.

I briefly talked my career path as a research scientist and the motivation of becoming a researcher in chemistry. In order to show the fun side of chemistry, at the end of this part, the students performed an experiment during which they made a pH indicator from red cabbage,

then used it to test some samples and observed color change.

- Overall advice or comments to future participants in the program (今後の講師へのアドバイス):

- Other noteworthy information (その他特筆すべき事項):

- Impressions and opinions from a company (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。)

本事業は高校生にとっても外国人研究員にとっても非常に意義深い事業であると感じました。今回は、「どうやったら化学の楽しさを高校生に伝えられるか？」を Meng 博士自身が考え、講演時間中に高校生自身に実験を行ってもらおうよう計画・実施しました。訪問先の桐生高校の先生方のご協力もあり、楽しみながら化学をツールとした交流ができたものと感じています。大学レベルの化学について英語で講義を受けるということは、決して高校生にとって易しいものではないと思いますが、今後もこういった活動が広がっていくよう期待しています。