

(For JSPS Fellow)

Form B-5

Date (日付) 15/1/2015

(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): Gang Liu (ID No. P13339)- Participating school (学校名): Koshi High School- Date (実施日時): 10/1/2015 (Date/Month/Year: 日/月/年)- Lecture title (講演題目): (in English) Separation of carbon nanotubes and graphene through host-guest chemistry(in Japanese) ホスト・ゲスト化学によるカーボンナノチューブとグラフェンの分離

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

The lecture was mainly focused on separation of carbon nanomaterials through host-guest chemistry. First, I briefly introduced China and my hometown, then Hunan University and South China University of technology, where I received my bachelor and doctoral degree respectively. The reason why I choose Japan to continue my research, and my impression about Japan also mentioned.

After that, I briefly introduced my work in South China University of technology; mainly about organic light-emitting diode (OLED) and its applications in flexible display and lighting system.

Regarding my research in Japan, first I explained what is host-guest chemistry and the scale of nanometer, then introduced typical carbon nanomaterials, such as single/double-walled carbon nanotubes (SWNTs/DWNTs), fullerence, and graphene, and their structural characteristics. After that, I carefully demonstrated how to separate SWNTs/DWNTs according to diameter and handedness, and graphene according the thickness, through host-guest chemistry. Since the challenge of this resarch is rational design host molecules, I explained the reasons why we designed molecules with specially shapes (such as nanotweezers, nanocalipers and nanokids), and how they discriminate the structure of SWNTs/DWNTs and graphene in detail. I also brifely introduced the synthesis of the molecular hosts.

Finally, about advices for high school students and Prof. Naoki Komatsu's group.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 90 min (分), Q&A time (質疑応答時間) 20 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))

Used projector

◆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)

Prof. Naoki Komatsu (host researcher)

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

Molecular model and glass wares for organic synthesis were used

- 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。):

聴衆は、高校1, 2年生で英語も科学も未熟なので、必ず日本語での解説が必要かと思われます。生徒にとっては良い刺激になったように思います。