

(For JSPS Fellow)

Form B-2  
(FY2018)

Date (日付)

16/01/2019 (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): Jian XU (ID No. P18051 )

- Participating school (学校名): Wakasa High School

- Date (実施日時): 15/01/2019 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Shining a light on ceramic

- Name and title of your accompanying person (講義補助者 職・氏名)

Mr. Nambu Hiroshi

- Lecture format (講演形式):

◆Lecture time (講演時間) 90 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))

MS PPT, Laser projector and optical ceramic sample demonstration

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

The lecture starts from the brief introduction of my home country (China), different behaviors of Chinese between north and south & west and east, especially for food. North people prefer to choose noodle as the main food, while the people living in the south part like to eat rice. As a comparison with Chinese food in Japan (中華料理定食), we never eat rice, noodle and dumplings together at the same time as the main food. Then the content goes to my personal motivation for scientific research and my journey from high school major in basic chemistry & physics, to materials science in Shanghai Univ., during my bachelor and master degrees, and to luminescent materials during my Ph. D period in Kyoto Univ. Basic knowledge of light (hot and cold), luminescence and transparent ceramics are briefly introduced, including the black-body radiation, band diagrams of insulator, semi-conductor and conductors, and microstructures of opaque and transparent ceramics. Then goes to the mechanism of photoluminescence in insulators (ceramics) doped with activation luminescence ions that are lanthanide ions, with abundant 4f energy levels able to exhibit various colors ranging from ultraviolet (UV) to infrared (IR) regions. Finally, experimental demonstrations of persistent luminescence, a kind of "self-sustained" luminescence phenomenon after stopping excitation sources are performed by the high school students. They use commercial WLED as the excitation source, and observe the bright persistent luminescence from different transparent ceramics either in green or in yellow

color after shutting off the white light from LED.

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

Just using large amounts of pictures and figures to introduce very basic knowledge about your research and catch their attentions. Speaking English slowly, and encourage them to raise their hands and ask questions.

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

N/A

- Impressions and comments from the accompanying person (講義補助者の方から、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。)

N/A