



SD

※弊会記入欄

Form B-2  
(FY2023)  
Must be typed

Date (日付)  
24/07/2023 (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): Bojanowski, Niklas Maximilian (ID No. P22771)

- Name and title of the accompanying person (講義補助者の職・氏名)  
none

- Participating school (学校名): Shogaku Gakuen Educational Foundation Okinawa Shogaku Jr. & High School (Naha-city, Okinawa)

- Date (実施日時): 19/07/2023 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):

Graphene and Nanographenes

- Lecture format (講義形式):

◆  Onsite ・  Online (Please choose one.)(対面 ・ オンライン)((どちらか選択ください。))

◆ Lecture time (講義時間) 120 min (分), Q&A time (質疑応答時間) 10 min (分)

◆ Lecture style (ex.: used projector, conducted experiments)

(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))

Small experiments on the exfoliation of graphene, presentation on studying chemistry

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

In this lecture, I gave an introduction to studying chemistry in Germany and my personal experiences of becoming a JSPS scholar at the Okinawa Institute of Science and Technology Graduate School. Thematically, we explored graphene. Graphene is a two-dimensional material made up of a single layer of carbon atoms arranged in a hexagonal lattice. We began with an introduction to chemistry and its relevance to synthesizing graphene via bottom-up routes, highlighting its exceptional mechanical, electrical, and thermal properties.

One of the most important processes in top-down graphene synthesis is exfoliation, which involves separating layers of graphite to obtain a single layer of graphene. We discussed the various methods of exfoliation experiments and how they are used to obtain graphene with different properties. We investigated the Scotch tape method to isolate single layers of graphene as introduced by the Nobel prize laureates Graim and Novoselov.

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We also delved into the concept of hybridization, which plays a crucial role in graphene's unique properties. The hybridization of carbon atoms in graphene creates strong covalent bonds, which contribute to its mechanical strength and thermal conductivity. Overall, this lecture provided a comprehensive overview of the chemistry of graphene, its properties, and its potential applications.

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

- 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。):

