

様式 A-1
(FY2024)

令和7年 2月 5日

サイエンス・ダイアログ 実施報告書

1. 学校名・実施責任者氏名: 長野県屋代高等学校・丸山省三
2. 講師氏名: Dr. Subarna MAITY
3. 講義補助者氏名: _____
4. 実施日時: 令和7年 2月 3日 (月) 13:40 ~ 15:30
5. 参加生徒: 2 年生 38 人、 年 生 人、 年 生 人 (合計 38 人)
備考: (例: 理数科の生徒) 理数科
6. 講義題目: The World of Nano: Small is interesting
7. 講義概要: (1) 講演者の母国について
(2) 研究者になった理由
(3) 現在研究していること: Nanoscience
(4) 本校生へのメッセージ
8. 講義形式:
☒ 対面 ・ ☐ オンライン (どちらか選択ください。)
 - 1) 講義時間 50 分 質疑応答時間 35 分
 - 2) 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)
プロジェクター使用による講義
 - 3) 事前学習
☒ 有 ・ ☐ 無 (どちらかに○をしてください。)
使用教材 _____
9. その他特筆すべき事項:
 - ・ 昨年 12 月中旬に、当日使用のスライドと参考資料を講演者からいただき、生徒に送信し、このプログラムへの事前学習を兼ね関心を高めるための工夫を図った。
 - ・ 事前学習を通して、講演者への質問を準備させた。
 - ・ 講義の後の Question and Answer Session が活発に進むように、本校の GI(Global Instructor: Native speaker)に Moderator を依頼した。
 - ・ 生徒の質問に一つ一つ丁寧に対応する講演者は好印象だった。

Form B-2
(FY2024)
Must be typed

Date (日付)
10/02/2025 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ 実施報告書)

- Fellow's name (講師氏名): Maity Subarna (ID No. P23334)

- Name and title of the lecture assistant (講義補助者の職・氏名)

NA

- Participating school (学校名): Yashiro High School, Nagano Prefecture

- Date (実施日時): 03/02/2025 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目): The World of Nano: Small is Interesting

- 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) 45 min (分), Q&A time (質疑応答時間) 45 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))

Through powerpoint presentation using projector

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

My lecture was about the interesting facts, daily usage and future applications of nanomaterials. As introduction, I presented my educational background and research career and talked about my home country India, its natural and cultural diversity. Then, I explained the definition of 'nanomaterial' and a historical perspective of the evolution of nanoscience including the ancient Lycurgus cup made of dichroic glass and discovery of electron microscope. The first chemical synthesis of gold nanoparticle performed by Michael Faraday was explained with easy visuals. As the size emerges in nano-regime, the properties of the nanoparticles becomes strongly dependent on size. So, the variation in the colour of gold nanoparticles with size and its reason was explained. To ignite the interest of the students, I presented the electron microscopic images of anisotropic nanoparticles with triangular, rod, pyramid, cubic and star shape. The latest developement in this field is the Nobel prize in chemistry in 2023 which was awarded for the discovery of quantum dots. As the potential applications of nanomaterials, commercialization of quantum dot LEDs, photothermal therapy to kill cancer cells (light to heat conversion), thermoelectric property (heat energy to electric energy) and water purification with nanomaterials

were discussed. Finally, I represented the digital photographs of photoluminescent (red, green and blue color) gold and copper nanoparticles and microscopic images of rod-shaped gold particles, which I have synthesized during my research life. I emphasized the importance of cultural exchange and travel beyond the international boundary to be researcher with enjoyable life.

During Q/A session, the students asked several questions about nanomaterials and Indian cultures. They were very well-prepared and carefully read the materials which I shared with the school earlier. It was very encouraging for me to talk with the curious young minds.

◆Other noteworthy information (その他特筆すべき事項): The response from the school and the students was very welcoming. I sincerely thank them all.

- Impressions and comments from the lecture assistant (講義補助者の方から、本プログラムに対する意見・感想等がありましたら、お願いいたします.): NA

