

様式 A-1  
(FY2023)

令和5年12月4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: 山梨県立甲府南高等学校 ・ 廣瀬正巳
2. 講師氏名: Dr. German MOLPECERES DE DIEGO
3. 講義補助者氏名: 小道 雄斗
4. 実施日時: 令和5年12月1日(金) 13:55 ~ 15:30
5. 参加生徒: 1年生 40人、 2年生 人、 3年生 人(合計 人)  
備考: (例:理数科の生徒) 理数科の生徒
6. 講義題目: 化学で迫る宇宙
7. 講義概要: 星や宇宙ができるまでについて、理論化学や宇宙空間に存在する物質やイオンについての講義
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 60分 質疑応答時間 30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、オンラインアプリケーション(mentimeter)など  
3) 事前学習  
☒有 ・ ☐無 (どちらかに○をしてください。)  
使用教材 講師の方から送付された資料
9. その他特筆すべき事項:

抽象的な概念をサポートの先生と一緒に分かりやすく、生徒に興味を持たせるように講義を進めていただきました。

Form B-2  
(FY2023)  
Must be typed

Date (日付)  
04/12/2023 (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): German Molpeceres de Diego (ID No. P22013)
- Name and title of the accompanying person (講義補助者の職・氏名)  
Mr. Yuto Komichi
- Participating school (学校名): Kofu Minami Senior High School
- Date (実施日時): 01/12/2023 (Date/Month/Year: 日/月/年)
- Lecture title (講義題目):  
Astrochemistry, the journey of the elements from a star to our body.
- 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) 65 min (分), Q&A time (質疑応答時間) 40 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))  
First: Lecture using projector (65 min), combining English and Japanese. Second: Quizz game using the students' laptops and Mentimeter (<https://www.mentimeter.com/>) (25 min).  
Third: Q&A by the students (15 min)
- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

The presentation part of the lecture was divided into four segments after our personal presentations. The first segment focused on various regions of space, encompassing stars, clouds, protoplanetary disks, and comets. The second segment elucidated the "chemistry" of astrochemistry, detailing gas phase chemistry, chemistry on ices, and energetic chemistry in space. The third segment delved into telescopes and methodologies for space observation. Finally, the fourth and last segment guided students on pursuing an academic career in astrochemistry, exploring career prospects, and highlighting potential research locations in Japan.

Following the lecture, we conducted a quiz game with 10 questions in groups of approximately 6 participants. The quiz rewarded quick answers, fostering a high level of student engagement and promoting healthy competition.

We concluded with a Q&A session, during which I was pleasantly surprised by the quality of the questions and the students' excellent comprehension of the subject matter.

The lecture was mostly given in English, but a small portion of it was given in Japanese by Mr. Komichi. This proved to be the best decision for the lecture, as it allowed the students to engage with the technical topic in their own language and establish relations to the content that was presented in English and that perhaps was not totally understandable to them. The quizz game was totally in English, with simple words. Finally, the Q&A was totally in Japanese, and Mr. Komichi translated the questions.

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

As I mentioned, I think that combining the lecture between me and my colleague Mr. Komichi was what made the lecture a success, and distinct to other lectures. I can only recommend to follow this course of action by successive lecturers. Even if it is a very small fraction of the lecture (10–15 %), introducing some Japanese guarantees a better permeation of the talk's materials to the students.

Finally, I must praise the students in the lecture. I was very impressed by their interest and the degree of understanding that they showed during the lecture. I am sure this is due to the excellent performance of Kofu Minami High School.

- 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。):

This lecture would not have been possible without Mr. Komichi, and I would like to emphasize the primary role that he had in the successful consecution of the lecture. I think his roles were beyond the ones specified for the accompanying person and I would like to highlight his work.

astrochemistry, the journey of the elements  
from a star to our body.  
で迫る宇宙 ～星や私たちができるまで～

Germán Molpeceres / Yuto Komichi  
Department of Astronomy, Graduate School of Science, University of Tokyo

サイエンスダイアログ  
「化学で迫る宇宙」星や私たちができるまで  
Germán Molpeceres

