2024年 11月 11日

サイエンス・ダイアログ 実施報告書

- 学校名·実施責任者氏名: 東京都立日比谷高等学校 入山美樹子
- 2. 講師氏名: Dr. Maxime Yann MEDEVIELLE
- 3. 講義補助者氏名: ____ 吉村 果保 様
- 4. 実施日時: 2024 年 11 月 11 日 (月) 15:30 ~ 17:00
- 5. 参加生徒: <u>1</u>年生 <u>7</u>人、 <u>2</u>年生 <u>3</u>人、 <u>3</u>年生 <u>2</u>人(合計 <u>12</u>人) 備考:(例:理数科の生徒)
- 請義題目: 超弦理論
- 7. 講義概要:祖国フランスについてや今までの経歴を含めた自己紹介の後、理論物理学とは何か、特に高エネルギー理 論物理学、量子力学、一般相対性理論といったバックグラウンドを説明していただき、超弦理論について、生徒にもわか りやすく解説していただきました。
- 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)
 プロジェクター使用による講義
 - 3) 事前学習
 有 ・ (無) (どちらかにOをしてください。)
 使用教材
- その他特筆すべき事項: 特になし

Date (日付) 12/11/2024 (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):Maxime Medevielle	(ID No. P23774)
- Name and title of the lecture assistant(講義補助者の職・氏名)	
Kaho YOSHIMURA PhD student	
- Participating school(学校名): Hibiya High School	
- Date (実施日時): 11/11/2024	(Date/Month/Year:日/月/年)
- Lecture title (講義題目):	
Superstring theory	
- 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) <u>60 min(分)</u> , Q&A time(質疑応答時間)30 <u>min(分</u>	<u>·)</u>
◆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))

Projector

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

I started by introducing myself, sharing about my hometown Barbizon in France and the aspects of French culture that I carry with me. I described growing up in a country known for its rich culture and vast contributions to science and some of the great French scientists, like Henri Poincaré and Marie Sklodowska Curie, who pioneered discoveries that continue to shape modern science. I also shared why I decided to become a physicist, describing my fascination with the mysteries of the universe and the drive to answer questions that seemed beyond reach as a child. My passion for discovery eventually led me to study theoretical physics, where I could explore these fundamental questions more deeply.

From there, I introduced the students to theoretical high-energy physics, a field that investigates the universe's most basic components—its particles and forces—using complex mathematical models. I explained that high-energy physics addresses questions about the origins and composition of matter and seeks to develop an understanding of how the universe functions at the most fundamental levels.

I then moved to discuss string theory, one of the field's most promising yet challenging areas. String theory, I explained, is an attempt to reconcile two major fields in physics: quantum mechanics, which governs the behavior of the smallest particles, and general relativity, which describes gravity and the fabric of space-time. String theory posits that particles are actually tiny, vibrating strings, and each vibration pattern corresponds to a different particle. This theoretical framework offers a potential solution for combining quantum mechanics with gravity, allowing scientists to study the universe more cohesively, especially in extreme scenarios like black holes.

To wrap up the presentation, I offered the students some advice for those interested in pursuing a career in theoretical physics. I emphasized the importance of curiosity, resilience, and a strong foundation in mathematics and problem-solving. I encouraged them to keep questioning and to pursue what fascinates them, as these are the qualities that drive scientific discovery and progress.

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

Everyone one involved was very nice and motivated, the students were very curious and engaged in the topic, the teacher and the people from JSPS made sure I had everything I needed for the lecture. I also benefited from the support of my lecture assistant when my japanese skills were lacking.

 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。):

The students asked a lot of insightful questions and seemed very motivated by the talk. They also asked for advice about studying abroad and choosing a major in university. I think the speaker's career path, especially the fact that he changed his major after studying medicine for a year, encouraged them to pursue what they truly want to study.

