

様式 A-1  
(FY2023)

令和6年 2月 8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: 岐阜県立恵那高等学校 山本 雅人
2. 講師氏名: Dr. Albert ESCRIVA MANAS
3. 講義補助者氏名: \_\_\_\_\_
4. 実施日時: 令和6 年 2月 7日 (水) 13:40 ~ 15:40
5. 参加生徒: 2 年生 41 人、 1 年生 36 人、 \_\_\_\_ 年生 \_\_\_\_ 人 (合計 77 人)  
備考: (例: 理数科の生徒) 理数科の生徒
6. 講義題目: Scientific journey into the cosmos and introduction into primordial black holes
7. 講義概要: 自身のプロフィールとブラックホールにまつわるシミュレーションについて
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 40 分 質疑応答時間 5 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:

講師の先生による講義は上記の時間、内容でした。加えて13:45~14:30には生徒による理数系課題研究に関する英語プレゼンを聞いていただき、質疑応答や研究に対する助言をいただきました。

Form B-2  
(FY2023)  
Must be  
typed

Date (日付)

23/02/2024 (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): Albert Escrivà (ID No. P22328)

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

No

- Participating school (学校名): Ena High School

- Date (実施日時): 07/02/2024 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):

*Scientific journey into the cosmos and introduction into primordial black holes*

- 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) 5 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))

used projector

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

I divided the lecture into two parts: In the first part, I introduced very briefly the country where I was born (Spain) using some maps. I also introduced the city of Barcelona with some pictures, including some typical dishes. Later I started to talk about my first steps, going into high school, what I studied and my specialisation. I also introduced the university system in Spain as well as the subjects learned during bachelor and master studies. Before finishing this block, I gave my personal opinion about some tips for students for academic success in research, in particular: i) be confident in yourself, ii) be curious and iii) be patient.

In the second block, I started to introduce what is the Universe and the field of cosmology as a research field. I included in the presentation short divulgative movies from youtube. Moreover, I gave the students some basic idea of the evolution of the Universe and the constituents of it. Later I introduced the concept of spacetime and black holes. In particular, I focus on how black holes can be formed from the collapse of stars depending on their mass.

In the final part, I introduced the concept of dark matter, which represents approximately the 27% of the content of our Universe, and primordial black holes (black holes that could have originated in the very early Universe and could constitute the dark matter). Finally, I gave the students some basic knowledge about the perspectives of the detection of primordial black holes using gravitational wave astronomy, and I introduced my research focused on numerical simulations (using computers) of the formation of primordial black holes.

◆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。):