

様式 A-1
(FY2023)

2023 年 7 月 13 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: 兵庫県立川西緑台高等学校 山本 和也2. 講師氏名: Dr. Thomas RAUJOUAN

3. 講義補助者氏名: _____

4. 実施日時: 2023 年 7 月 10 日 (月) 11:10 ~ 12:155. 参加生徒: 3 年生 40 人、 2 年生 0 人、 1 年生 0 人 (合計 40 人)備考: (例: 理数科の生徒) 総合理数コースの生徒6. 講義題目: The mathematics of soap bubbles

7. 講義概要:

I am a mathematician. My job is to help the community of mathematicians to improve mathematics, to make mathematical tools for engineers, to teach mathematics to students, and to help everyone understand mathematics. My research is in geometry. Some geometrical objects exist, and some of them do not exist. For example, a triangle with edges of lengths 1cm, 2cm, and 5cm does not exist (try it at home!). I am specialized in the study of surfaces that take the shape of soap bubbles or soap films. I want to prove that some of these surfaces exist, and that some of them do not exist. This is useful for architects, artists, computer engineers.

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 45 分 質疑応答時間 20 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、 演示実験あり

3) 事前学習

有 ・ 無 (どちらかに○をしてください。)使用教材 事前学習プリント

9. その他特筆すべき事項:

Form B-2
(FY2023)
Must be typed

Date (日付)
12/07/2023
(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): RAUJOUAN Thomas (ID No. P22766)
- Name and title of the accompanying person (講義補助者の職・氏名)

- Participating school (学校名) Hyogo Prefectural Kawanishi-Midoridai Senior High School
- Date (実施日時): 10/07/2023 (Date/Month/Year: 日/月/年)
- Lecture title (講義題目):
The mathematics of soap bubbles
- 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) 40 min (分), Q&A time (質疑応答時間) 20 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))
Projector + experiments

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.
I first introduced myself: where I come from, where I have worked, what languages I speak for my work. I explained how the system of postdoctoral hiring works: meeting with a colleague, writing a proposal, getting accepted. I then explained my field of research with slides and computer experiments. I started from looking at the shape of the Kobe tower and asked the question of measuring curvature. I used the software GeoGebra to define the curvature of a planar curve and of a two-dimensional surface. I applied the definitions to 3D model of the Kobe tower. I then explained my topic of research: constant mean curvature surfaces. I showed with soap bubbles a real-life realization of constant mean curvature surfaces. With soap and water, I made several examples and showed them to the classroom. Finally, using 3D models of the soap bubbles I had made, I showed how mathematics can extend the possibilities of real life and create new kinds of surfaces.
After my talk, we spend around 20 minutes of questions and answers about mathematics, but also comparing my home country with Japan.

SD

※弊会記入欄

◆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。):



Remark:
On a soap
bubble, all points
have the same
mean curvature.

Constant Mean Curvature surfaces

