

Form B-2  
(FY2022)  
Must be typed

Date (日付)  
18/05/2022 (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): Wang Runzi (ID No. P20350)

- Name and title of the lecture assistant (講義補助者の職・氏名)  
Suzuki Ken, Associated Professor

- Participating school (学校名): Kamaishi High School

- Date (実施日時): 18/05/2022 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):  
Introduction of Engineering Science and Its Role in Aircraft Engines

- 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) 50 min (分), Q&A time (質疑応答時間) 50 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))  
Presentation + conducted experiment

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

1. Wang Sensi gives a scientific lecture

Giving a lecture entitled as "Introduction of Engineering Science and Its Role in Aircraft Engines". Firstly, Introduction of myself is to exhibit my academic Journey since I start my research. Secondly, Introduction of Chinese Culture includes general China introduction, Hometown Introduction, Chinese Culture of and Chinese Animation. Thirdly, the aim of Why I want to become a PhD is activate Japanese high-school students to be intrested in scientific research, where enriching life experience, holding on dreams, having critical thinking and having team collaboration are highlighted. Fourthly, Introduction of Engineering Science includes definition, beneficial roles, classification and challengs. In detail, engineering science is defined as "A scientist discovers that which exists, an Engineer creates that which never was" by von Karman. Engineering Science can change and save our world. Taken aero-engines as an example, Modern engineering majors are continuously subdivided with the division of labor, and each product involves multiple disciplines. Facing the technical failure and technical complexity in this changing century, all of you, as the younger generations, shoulder the mission of future

historical development. Finally, Introduction of Aircraft Engine includes the brief summary, history, fatigue concept and how to prevent fatigue of aircraft engine. In particular, the basic mechanics idea of fatigue concept is introduced into keeping long-time and high-reliability of aircraft engine operations. Last but not least, the appendix of total engineering education, which includes all-process, all include and all-people features, are introduced.

## 2. Suzuki Sensei gives the details of experiments

As mentioned in the previous lecture, in order to use large transportation equipment such as airplanes, infrastructure structures, and electronic devices used in daily life safely and securely, it is important to understand the strength and deformation characteristics of materials used in the products to avoid their failure during use. Therefore, with the aim of encouraging interest in engineering, especially strength of materials, the students were divided into groups of four, and each group conducted a three-point bending test on a flat aluminum specimen to investigate the relationship between the applied load and the amount of deflection, and to actually experience the phenomena they had learned about in the lecture. The experimental procedure was explained in a hybrid of English and Japanese, in consideration of the purpose of the Science Dialogue Project, which aims to improve English skills of high-school students. Through the experiments, the students experienced plastic deformation behavior and fatigue fracture.

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

None.

### - Impressions and comments from the lecture assistant (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。):

日本の高校生の英語レベルと高校レベルの物理・化学の知識では、外国人講師の先生がその点を配慮せずに講義した場合、受講生は講義内容を全く理解できません。英語講義の内容ややり方に関し特に何も指示がありませんでしたが、高度な研究内容を一般的な高校生が聞き取れない英語で講義するスタイルでも問題ないとお考えでしょうか。実際、昨年の釜石高校のサイエンス・ダイアログでは、難しくかつ聞き取れない話を2時間ただ聞いていたようで、外国人の先生には貴重な経験だったと思いますが、高校生にとっては苦痛な時間だったと思われまます。今回は Wang 博士のご配慮により、研究内容の説明を高校生向けにわかりやすく編集していただき、また平易な英語でゆっくりと話をしていただきました。また、ただ講義を聞くだけでなく、実際に簡単な実験もしてもらいました。高校生をエンカレッジするという目的を達成するためには、このような配慮や方法が必要だと考えますが、それを高校の担当教員、研究室の受け入れ教員任せにせず、JSPS から外国人講師の先生に講義内容や英語講義のやり方に関する指示を出して頂きたいと思いました。