

(For JSPS Fellow)

Form B-2
(FY2018)Date (日付)
24-10-2018 (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): Hazel Lowe (ID No. PE17017)
- Participating school (学校名): Sumiyoshi High School
- Date (実施日時): 16-10-2018 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): Research with Giant Lasers
- Name and title of your accompanying person (講義補助者 職・氏名)
Dr Mamiko Nishiuchi
- Lecture format (講演形式):
◆Lecture time (講演時間) 45 min (分), Q&A time (質疑応答時間) 15 min (分)
◆Lecture style (ex.: used projector, conducted experiments)
(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))
Powerpoint, demonstrations with projector, visual aids
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

I introduced myself to the students including where I am from, my education/career and my position at the Kansai Photon Science Institute (KPSI). I showed the students examples of how lasers are used in everyday life, for example in DVD and Blu-ray players. I then asked the students how a laser is different to a light bulb and explained the properties of these different light sources including demonstrations of dispersion, reflection, focussing and polarisation. I introduced the idea of a plasma and that examples of plasmas are found in nature in the form of fire, lightning and stars. I explained that we use lasers to produce tiny samples of plasma that are at 50,000,000°C which is hotter than the centre of the sun.

I introduced KPSI's J-KAREN-P laser and spoke about how Chirped Pulse Amplification, which recently won the Nobel Prize in Physics, makes it possible to build such a high power laser system, but that J-KAREN-P is very different to the type of lasers that you find in everyday objects. It is a large scale facility that requires many people to operate it each day. I showed the students photographs of the experimental area and explained how the laser driven plasma emits light, x-rays, electrons and ions which we study and can use for applications. I showed examples of using laser driven plasmas to create an x-ray source for imaging and also using x-ray emission

to determine the temperature inside the plasma. I also talked about how we are developing laser driven ion sources to improve existing hadron therapy treatment centres for cancer patients.

- Overall advice or comments to future participants in the program (今後の講師へのアドバイス):

The school were very helpful and accommodating when making preparations for the lecture. They were able to provide some of the equipment that I needed for demonstrations and also audio/visual equipment such as a camera and projector. If you need any equipment, just ask!

- 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。)

高校生に対して、最先端の物理をそれも英語で伝えるのは少し無理があるのかなという感じも受けましたので、講義補助者の役割はそれなりに大きいなと感じました。