

(For JSPS Fellow)

Form B-5

Date (日付)

2/10/15 (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): Andreas W. Schell (ID No. P15026)

- Participating school (学校名): Fukui Prefectural Fujishima Senior High School

- Date (実施日時): 30/09/15 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): (in English) Quantum Optics: Controlling Single Quanta of Light and Matter

(in Japanese) -

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

In the lecture "Quantum Optics: Controlling Single Quanta of Light and Matter", an impression of the very advanced field of quantum optics is given to the students.

At first, for about 10 minutes Germany and the person of the lecturer are introduced, including the motivation for becoming a researcher and little bits about history. In the scientific part of the lecture, in the beginning the origins of mankind's knowledge about light and its importance is discussed in a classical context. Topics here are the human sense of vision, the origin of colors, geometrical optics, wave optics, interference and diffraction, and Young's experiment, which the students are allowed to perform in a five minutes experimental break. After the classical part, quantum mechanics is introduced and examples are given. Especially the existence, creation, and measurement of single particles of light, so called photons, is shown. Different sources of single photons are introduced and their properties are shown. Also, experimental techniques such as optical microscopy and atomic force microscopy are explained and photos are shown. The lecture concludes with possible applications and future research, such as quantum computing, quantum cryptography, and quantum metrology.

Due to the design of the lecture as an overview, which due to its nature has to leave out many details, many questions and additional explanations may be given after the talk.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 50 min (分), Q&A time (質疑応答時間) 20 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))

presentation, 5 min experiment (Young' s experiment)

- ◆ Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

help by teacher

- ◆ Name and title of accompanied person (同行者 職・氏名)

- _____

- ◆ Other note worthy information (その他特筆すべき事項):

- _____

- Impressions and opinions from accompanied person (同行者の方から、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。): -