

(For JSPS Fellow)

Form B-5

Date (日付)

31/01/2018

(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): Jelena Muncan (ID No. P17406)
- Participating school (学校名): Kawanishi Midoridai High School
- Date (実施日時): 31/01/2018 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): Water as a source of information
- Name and title of your company (同行者 職・氏名)  
中川 雄貴 (学生 修士 1 年)
- Lecture format (講演形式):  
◆Lecture time (講演時間) 60 min (分), Q&A time (質疑応答時間) 5 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))  
Used projector and a laptop
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

I began my lecture with the very brief introduction of the country I was born in, focusing on the formative elements which were for me crucial to eventually choose a scientific carrier. I emphasized the importance of curiosity, love of reading, English language and finding the right scientific field as elements which enabled me to become a scientist. I explained that as a biomedical engineer and a scientist my job is to be creative and find new solutions to the problems related to health care. That is exactly the reason why I came to Japan to study the novel scientific discipline Aquaphotomics established by prof. Dr Roumiana Tsenkova at Kobe University, which is devoted to studies of water structure using water-light interaction. For biomedical scientists water is very important, because human body is mainly composed of water. This is usually considered an obstacle in disease diagnosis, because every disease starts with very small changes, difficult to observe in highly aqueous systems. However, I showed that water in living cells is different comparing to the ordinary liquid water, and that the structure of water changes depending on the physiological status of the organism. The structure of water is thus a source of information about the health. And this is not the only example how structure of water can be used to provide information. It can be used as a general source of information for any water system. I presented numerous examples how this new knowledge can be utilized for water

quality monitoring, monitoring of ovulation period in animals and humans, detection of pregnancy, monitoring of dialysis therapy and even the state of the contact lenses that people wear. Using very simple devices called spectrometers, we can rapidly, without any chemicals, just using water-light interaction find out many important information related to human health. And for the future, this method holds great potential for creating small, portable devices which could enable diagnosis and health monitoring anytime, anywhere, completely painfree and easy to use.

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

My overall advice would be to just speak slowly and use simple English. Presence of a Japanese speaking person is also of help, I think it stimulates students to ask questions, because they are not afraid in that case that they'll make mistakes.

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

- Impressions and opinions from a company (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。)

高校生が英語での説明を十分に理解することは難しかった様に感じました。英語での要旨と単語リストが配布されているようですが、専門的な内容も含まれており、読みづらいものになることもあると考えられます。そこで、同時に日本語訳のものを配布することが有効になると思います。予め、日本語で内容を把握することで、当日の英語・研究内容の両方をより理解しやすくなると思います。

一方で、高校生達が外国人の方から最先端の研究についての講義を受けるという機会は非常に貴重なものであると感じました。目を輝かしながら講義を受けている高校生の姿は非常に印象的でした。また、少しでも多くの高校生にこのような機会があれば、より多くの高校生が科学に興味を持ち、科学の発展に繋がるのではないかと思います。