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**（For JSPS Fellow）**

**Form B-5**

Date（日付）21 / 7 / 2014
（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）: （ID No. P 13072）
NGUYEN TUE MINH

- Participating school（学校名）: Tokushima Prefectural Wakimachi Senior High School

-Date （実施日時）: 15/7/2014（Date/Month/Year:日/月/年）

- Lecture title（講演題目）:Dioxins from high-tech trash: An outlook on environmental chemistry & toxicology

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

More than 60 million man-made chemicals have been produced to date, and a large number of them has been released to the environment. Such chemicals—referred to as contaminants—can be transformed, distributed in water, air, soil, vegetation, and may accumulate in animals through direct exposure or through the food chain. Environmental contamination by toxic chemicals and their transformation products can cause initially non-obvious but long-term impacts to animals or even entire ecosystems, and ultimately affect large populations of many people.

This Science Dialogue lecture will consist of a brief introduction to environmental chemistry and toxicology—science disciplines which study the sources, distribution, transformation and potential harmful effects of chemicals in the environment and in the body of animals or human. Basic concepts and approaches will be introduced through the examples of a specific group of contaminants: dioxins. Polychlorinated dibenzo-p-dioxins and dibenzofurans (also known simply as dioxins) are environmentally persistent contaminants generated as by-products during incomplete combustion processes and production of many industrial chemicals. Dioxins can cause many toxic effects (including reproductive and developmental abnormalities, immune deficiency, endocrine disruption and tumor promotion) even at very low exposure level. The toxicity of dioxins are strongly associated with their ability to over-activate the expression of genes controlled by the aryl hydrocarbon receptor (AhR). Recently, a new class of dioxins has been found in common houses inside consumer electronics such as older TVs and computers. These "new" dioxins contain bromine instead of chlorine, and are generated from a group of additive chemicals designed to prevent fire accidents (brominated flame retardants). Furthermore, inappropriate recycling of electronics can release large amount of not only brominated but also mixed brominated-chlorinated dioxins. Having a very similar chemical

structure with “conventional” dioxins, bromine-containing dioxins can also interact with AhR and potentially have the same range of toxicities. The lecture will discuss various challenges and perspectives in detecting and evaluating potential toxic effects of “new” dioxins in the environment.

- Language used（使用言語）: English

- Lecture format（講演形式）:

◆Lecture time（講演時間） 60 min（分）, Q&A time（質疑応答時間） 30 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））

Projector

◆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））

Assistance by accompanied person

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

Mari Ochiai, JSPS Postdoc fellow

◆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。）:**

Dr. Ochiai was surprised by and pleased with the quality of the questions from the students at the end of the lecture. However, she also hope that the students can be encouraged to involve themselves more actively during the lecture, and not only at the end.