

(For JSPS Fellow)

Form B-5

Date (日付)

(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): Zulma A Jimenez (ID No. P 13038)
- Participating school (学校名): Shizuoka Prefectural Iwata Minami High School
- Date (実施日時): 09/07/2014 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) Combining Polymers and the BZ Reaction
(in Japanese)

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

Polymers can be combined with the Belousov-Zahbotinsky reaction to create smart materials. These materials have potential applications in drug delivery systems and mechanical actuators. The Belousov-Zhabotinsky reaction is an oscillating reaction which shows oscillations in the concentrations of some of its intermediates. For instance the catalyst involved in the reaction is a metal ion, this ion changes its oxidation state in an oscillatory manner. When this catalyst is coupled to the polymer and the reaction is carried out, the catalyst causes the polymer to also oscillate. The latter oscillation is observed in the gel as a expansion-contraction mode. This mode can be exploited in the applications mentioned above. The coupling polymer can be a thermo-responsive polymer like Poly(NIPAm), this polymer changes its solubility in aqueous solutions by increasing temperature; so at high temperatures the polymer becomes insoluble in water. In the case of a Poly(NIPAm) network, by increasing temperature the network will shrink and change its volume (decreased). If for example the network is loaded with a chemical, this substance could be released by just increasing temperature. If we want the substance release to be done in a intermitent manner, we could couple it with the BZ reaction system.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 65 min (分), Q&A time (質疑応答時間) 45 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))

_____ Power point presentation and experiments done in the classroom.

◆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))

_____ A PhD student from my research group help with translations mainly during the question/answer time

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

_____ Ryota TAMATE, PhD student

◆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。):

He thought the lecture went well but the students were too shy.