（For JSPS Fellow）

Form B-5

Date（日付）
25/7/2011 （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）: Rekha Goswami Shrestha （ID No. P 10042 ）

- Participating school（学校名）: Chiba Prefectural Kashiwa High School

- Date （実施日時）: 2011-7-12 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: （in English） Nepal: A Brief Introduction and My Research in Japan

（in Japanese）

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

Surfactant: An Introduction

The term 'surfactant' is an abbreviation used for surface active agent. They are amphiphilic compounds, refering that they contain both hydrophobic 'water hating' groups (their *tails*) and hydrophilic 'water loving' groups (their *heads*). Therefore, a surfactant molecule contains both water insoluble (or oil soluble component) and a water soluble component. When they are added to water, surfactant molecules migrate to the water surface, where the insoluble hydrophobic group may extend out of the bulk water phase, either into the air or, if water is mixed with an oil, into the oil phase, while the water soluble head group remains in the water phase. This alignment and aggregation of surfactant molecules at the surface acts to alter the surface properties of water at the water/air or water/oil interface. Surfactants reduce the surface tension of water by adsorbing at the liquid-gas interface. They also reduce the interfacial tension between oil and water by adsorbing at the liquid-liquid interface. Many surfactants can also assemble in the bulk solution into aggregates. Examples of such aggregates are micelles and vesicles. The concentration at which surfactants begin to form micelle is known as the critical micelle concentration (CMC). When micelles form in water, their tails form a core that can encapsulate an oil droplet, and their (ionic/polar) heads form an outer shell that maintains favorable contact with water. When surfactants assemble in oil, the aggregate is referred to as a reverse micelle. In a reverse or an inverse micelle, the heads are in the core and the tails maintain favorable contact with oil. Surfactants are also often classified into four primary groups; anionic, cationic, non-ionic, and zwitterionic (dual charge). Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, and dispersants.

***Keywords**: Surfactant, surface tension, micelle, emulsifier, foaming agent.*

- Language used（使用言語）: English

- Lecture format（講演形式）:

◆Lecture time（講演時間） ~ 45（分）, Q&A time（質疑応答時間） ~20（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

◆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）

Dr. Atsutoshi Matsumura

◆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。）: