Must be typed

（For JSPS Fellow）

Form B-5

Date（日付）
14/11/2016 （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）: Aude Bouchet （ID No. P16035 ）

- Participating school（学校名）: Utsonomiya Girl's High School

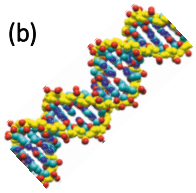
- Date （実施日時）: 17/10/2016 （Date/Month/Year:日/月/年）

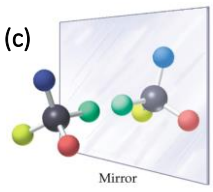
- Lecture title（講演題目）: Characterizing chiral molecules clusters with spectroscopy

（in Japanese）

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

An object is chiral if it is cannot be superimposed onto its mirror image. The word "chiral" comes from the Greek "χειρ" which means "hand" because our hands are the most familiar chiral objects (a). Around us, numerous objects are chiral. They can be natural or synthetic, macroscopic or microscopic. Examples can be found in our everyday life like snail shells, screws, or spiral staircases. At the microscopic level, the DNA molecule (b), which contains the genetic information of all living beings, forms a helix, which is a chiral object. In the language of chemistry, the two mirror images of a chiral molecule are called enantiomers (c). The two enantiomers of a chiral molecule can have very different chemical and biological properties. For example, the ibuprofen molecule that you take when you have a headache only has a therapeutic effect if it is left-handed. The right-handed enantiomer is inactive. Moreover, the two enantiomers of several chiral molecules smell differently, as carvone for example which can smell like caraway when it is left-handed or spearmint when it is right-handed. At the molecular level, the chemical or biological activity of the enantiomers results from different binding efficiencies to a chiral receptor. In simple words, the three dimensional shape of one of the enantiomers fits better to the receptor than the other enantiomer, like a key and a lock. Spectroscopy is the study of the interaction between matter (atoms and molecules) and light. By looking at how the light is absorbed, diffused or refracted by a sample, we can elucidate many properties of the matter like molecular structures. It can be used for understanding the structure of molecular clusters composed of chiral molecules and why it is important to apprehend the molecular processes driving the recognition between chiral molecules.





Must be typed

During the seminar, we have seen some examples of chiral objects (Apple “king’s cut”, molecular structure of limonene) and smelled the different smells of limonene’s enantiomers (orange and lemon/pine tree). Using a simple setup, we saw what polarization of light is and how it changes when interacting with chiral molecules. In the second part of the lecture, I presented a little bit about my home country, France, and more precisely about the region of Bordeaux. Finally, through my own experience, we have seen the general pathway to become a researcher, what are the typical activities of a researcher, as well as positive and negative aspects of the job.

- 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） 10 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 shown by a projector - demonstrations with simple material

◆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 provided by a student of my research group for short translations

◆Name and title of accompanied person（同行者 職・氏名）
Yuki Kon-no

◆Other noteworthy 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。）:

Thank you for a lot of precious experiences at lecture. [Yuki Konno]