

(For JSPS Fellow)

Form B-5

Date (日付)

05/02/2014 (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): Othman Michel Benomar (ID No. P 11316 )
- Participating school (学校名): ENA High School, Gifu Prefecture
- Date (実施日時): 29/01/2014 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) The life of stars and of their planetary companions  
(in Japanese)
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

The first half of my Lecture begun by presenting my country of origin (France) and its specificities (geography, famous places, food). Then the Lecture focused on why I became a researcher. Finally the second half of the lecture presented a general introduction to astrophysics, to finish by more specifically talk about my research topic: the asteroseismology and the current status of the quest of exoplanets similar to earth in our galaxy. Here I summarize the content of my lecture.

France is a country which has most of its territories in Europe. France is very famous for its so called metropolitan area. However, France conquered many places around the world, so called overseas territories. This is mostly islands (Martinique, Gouadeloupe, ...) and mostly touristic places. However, the biggest overseas territory is the Guyane, situated in south America. This place is famous because of the Kourou space center, from which Ariane 5 rocket is launch.

With 641185 km<sup>2</sup> and 66.4 Million inhabitant, France is roughly twice the size of Japan for only half its population. Therefore France is much less densely populated than Japan. France is famous for its numerous touristic places, such as the Eiffel tower or the Mont blanc. My country is also famous for its food. We found cheese and wine everywhere in France, but some regions have typical food. For example, the Foie gras comes from the north-eastern part of France and the fondue (cheese, wine, meat, bread) is a delicious typical mountain meal originally from the alps (near Italy and Switzerland).

Then why I became a scientist? Since very young (5 years old) I was interested in science, mostly, Astronomy and Archaeology. But at the university, I had to choose a career and given up archaeology. We can say that my career choice was highly inspired by my dreams and I encourage the youth to try to realise their dreams.

The universe is very mysterious. Its biggest mystery is that only 5% of the universe can be seen, the remaining 95% being called dark energy and dark matter. The term 'dark' refers to the fact that these unknown entities do not emit light. Any attempt to identify the nature of this dark objects was unsuccessful since more than 70 years. Despite that, the visible universe is still huge because it contains more than 500

billion galaxies, each galaxy containing several billion stars. We live in one of these galaxy, called the milky-way. On a very clear and dark night, you can see it stretching in the sky on the form of a bar, this because it is a disk, and we live inside this disk, at 27000 light year from the center.

My researches focus on stars and on explanets and on life these exoplanets. To study stars, we use the seismic waves that propagates within stars. Like in a bell, these waves resonate and the star pulsates at very frequencies that depends on its interior (pressure, density, ...). This is very similar to earth seismology and is called asteroseismology. The Kepler mission discovered that many stars around us have planets, some in the so-called habitable zone, where liquid water can exist. It is now believed that hundreds of planet of the size of earth can have liquid water at their surface, within few hundred light-years from us. Therefore, scientists now think that it is very likely that earth is not the only place where life has evolved.

- Language used (使用言語): English, Japanese (by the accompanied person)

- 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))

Use of powerpoint

◆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)

Kazuhiro Maeda

◆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。):

通訳として、サイエンスダイアログというプログラムに貢献できたことをまず光栄に思います。生徒からの質問も多く、とても有意義な講演であったように見えました。感想としましては、生徒個人と交流したり、より深く専門分野について説明するために、もっと時間が欲しかったと思いました。特に今回は理系の生徒が対象であったので、かんたんに、物理や数学が研究でどのように用いられているかを実演するなどの機会が設けられれば、生徒の学習意欲の益々の向上につながったと思います。