

(For JSPS Fellow)

Form B-5

Date (日付)

7/10/2013 (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): Pierre ALLAIN (ID No. P12796)
- Participating school (学校名): Kofu Minami Senior High School
- Date (実施日時): 03/09/2013 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) "About research, atoms and 'nanoscopes' "

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

I have first described my country and home town culture and history. I come from La Baule, France so I spoke about the local specialities (crepes and galettes) and did a bit of history of France (some students really like the historical part). Before speaking about physics, I did try to convince the students of the importance of learning English. I have also familiarized the students with the world of research and researchers by debunking a few cliché about scientists. For instance, the 'lone crazy scientist' image is inaccurate for research is an utterly collaborative enterprise.

Then, I have quickly moved on to more fundamental science where I insisted on the difference between classical physics (Newton's) and quantum physics which concerns the nanoworld that I have also introduced. I have started the lecture with an open question: why can't we go through walls. That was a way to introduce the atomic force that holds matter and prevents it to overlap.

For the core of the lecture, I have described the three types of microscope (that I prefer to call nanoscopes because they can probe nanometer-size object) that I study in my laboratory: The atomic force microscope (AFM), the transmission electron microscope (TEM) and the field ion microscope (FIM).

I have conducted a desktop experiment to explain how the AFM works and it was well received by the students. Then, I explain the analogy between the TEM and a normal microscope so the student could understand: the normal microscope works with light (photons) and the TEM works with electron beam. For the FIM, it was more complicated to explain but I introduced the quantum tunnelling effect that they understood.

- 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)

A table top experiented was conducted: a large size model of an AFM

◆ There was no interpreter.