

(For JSPS Fellow)

Form B-5

Date (日付)

2013-01-31 (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): SAILER Juergen (ID No. P 12325 )
- Participating school (学校名): Yamanashi Prefectural Hikawa High School (山梨県立日川高等学校)
- Date (実施日時): 2013-01-24 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) Quantum information processing  
(in Japanese)
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

As requested by the hosting school, I divided my lecture into two major parts. In the first half I introduced myself and my home country Germany. I gave a short introduction into the geography, demography and political system of Germany and compared it to Japan, highlighting similarities and major differences. Furthermore, the explanation of my vita allowed me to additionally outline the educational system in Germany, and to have a smooth transition to the second, scientific part of my lecture: Quantum information processing. Taking into account the scientific background of my audience, I used (over-)simplified but hopefully illustrative examples to explain the basic ideas and problems behind a quantum computer and its physical implementation in solid-state systems - in particular of implementations based on electron spin quantum bits in semiconductors - without going into details. To exemplify our (daily) research work, I included slides featuring the technology involved in our measurements and, as a hands-on experience for the students, brought some of our samples along. Students used a microscope, backed by explanations, to explore one of our tiny devices. Furthermore several different examples of semiconductors, such as silicon wafers, were handed over to the audience during the lecture allowing them to gain some hands-on experience.

- Language used (使用言語): English
- Lecture format (講演形式):
  - ◆Lecture time (講演時間) 90 min (分), Q&A time (質疑応答時間) 15 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 with Powerpoint slides on a projector + hands-on experience for students
  - ◆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))

Whenever it was necessary, Japanese explanations have been provided by my colleague

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

Baba Shoji (馬場 翔二)

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◆Other note worthy information (その他特筆すべき事項):

I would like to thank Yamanashi Hikawa Prefectural High School, especially Ms Miki Natori, for all their efforts in preparing the lecture, for hosting us and the very warm welcome and pleasant stay.

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- 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。):

英語の面で難しさがあり、講義中についていけなくなることがありそうです。専門的な内容は「部分的にわかる」程度でもよさそうですが、英語で困惑すると「全面的にわからない」という状況になるようです。その点で、通訳を務める同行者の責任は非常に大きなものとなると思います。あるいは、高校の英語/理科教師と事前連絡を綿密に取り合って、英語の側面でのセーフティーネットを設けた講義をできると一層よいかと思います。