

(For JSPS Fellow)

Form B-5

Date (日付)

04/10/2013 (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): BUERKLE Marius Ernst (ID No. P 12501 )

- Participating school (学校名): Ichikawa High School

- Date (実施日時): 01.10.2013 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Small, smaller, Nano (and beyond) or How small is Nano ?

(in Japanese)

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

At the beginning of the lecture I introduced my home region in Germany illustrated with some pictures and some general information on customs. Then I explained shortly were and what I studied, emphasizing that I am doing *theoretical physics* and therefore I am not conducting experiments. After this I started with the actual lecture introducing the length-scales and their division in macro, micro, nano and atomic scale. This was illustrated with typical examples of that length scale, e.g. ants, blood cells, integrated circuits or carbon nano tube. Then I explained how one can "see" nano scale structures by means of STM technique. I showed a short animation of the connection between tunneling current and the visualized picture. Next I sketched how individual atoms can be moved by STM technique due to VdW interaction and VdW was connected to Gekkos. As an example different STM pictures for artificially created atomic scale structures were presented. After introducing the basic concepts of how to see and manipulate single atoms. After this I explained an actual atomic devices, namely an "one atomic transistor" (which was developed at the university were I graduated). Last but not least I showed a frame-by-frame animation made by STM technique animating individual atoms for a short movie. The presentation was concluded and followed by several question from students as well as from teachers.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) approx. 40 min (分), Q&A time (質疑応答時間) approx. 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))

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))

translation of teacher \_\_\_\_\_

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

none \_\_\_\_\_

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

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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。):

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