

Form B-5

Date (日付)

04/07/2012

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): Simon James WOOD (ID No. P 11793)

- Participating school (学校名): Nagano Prefectural Suwa Seiryu High School,
Suwa-city, Nagano prefecture

- Date (実施日時): 25/06/2012 (Date/Month/Year:日/月/年)

- Lecture title (講演題目): (in English) Symmetry and Physics

(in Japanese) 対称性と物理学

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

I first talked a little bit about my own background. Where I come from, why I came to Japan, etc. Then I gave a short introduction into what physics is and what today's big questions in physics are. For the remainder of the lecture I gave a simple introduction to theoretical physics highlighting the importance of symmetry, before specialising to conformal symmetry which is the focus of my own research.

I showed the students how one can see that independence of time leads to energy conservation. I used this as an example to explain Noether's famous theorem that relates symmetries to conservation laws.

I explained conformal symmetry by introducing the Ising model. This made it possible to show some nice pictures illustrating the consequences of conformal symmetry in particular scale invariance. For the last part of the lecture I tried to put everything I had explained into a real world example by explaining the critical point of fluids (the critical temperature and pressure at which the difference between liquid and gas disappears) and how the phenomenon of critical opalescence can be understood in terms of scale invariance.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 60min (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))

Used projector and black board

◆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))

I had my slides translated by Yoshihisa OBAYASHI. I was not accompanied by anyone.

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

N/A

◆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。):