

Form B-5

Date (日付)

20/01/2012

(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): Mattia Butta (ID No. P 10376)- Participating school (学校名): Kumamoto Prefectural Daini Senior High School- Date (実施日時): 19/01/2012 (Date/Month/Year: 日/月/年)- Lecture title (講演題目): (in English) MAGNETISM AROUND US(in Japanese)

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

My lecture was focused on magnetism, the physical laws which rule it and the applications we can obtain from magnetism for everyday's life. First I introduced very basics of magnetism: why magnets attract some materials and why not others, I explained concept of magnetic permeability.

Then, I demonstrated by an experiment the induction law, showing that moving a magnet you can produce an electric current, and what influences its amplitude. After that I explained this is the principle used in power plant to convert mechanical energy to electric energy by alternators. Furthermore I have shown the opposite, that is a current can produce a magnetic field and by an experiment I have explained how this effect can be used to make motors. Finally I made an experiment to explain the principle of regenerative braking used in hybrid cars, by showing the braking effect of a magnet sliding in a thick copper tube.

In this way students could understand how many things our life and our economy is based on actually work.

The last part of the lecture was focused on my research about measurement of magnetic fields and applications related to them such as anti personnel mine detectors, navigation systems or medical applications. Students could then understand non only the physical laws (which were explained after the experiments) but also what we can produce useful out of this knowledge of physics.

- Language used (使用言語): English and Japanese

- 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))

Slides and a lot of experiments

◆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 often repeated the sentence also in Japanese my self (a few times local teacher gave translation)

◆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。):