

Form B-5

Date (日付)

12/02/2015 (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): Ilpo Niskanen _____ (ID No. P14360)

- Participating school (学校名): Tsuru High School 山梨県立都留高等学校- Date (実施日時): 10.2.2015 (Date/Month/Year: 日/月/年)- Lecture title (講演題目): Interaction between light and materials(in English)(in Japanese) 光と物質の相互作用について

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

Optical spectroscopy is one of a number of techniques that can be applied to the inspection of these properties by the detection of reflection, absorption, scattering and polarization of a probe light. One significant optical property of particles is the refractive index which is an intrinsic material property. The refractive index is a very important parameter for the detection of liquid concentration, purity, chemical identification of species, density, and even temperature. Information on the refractive index of particles is important e.g. with pigments in the paper industry (rheology of slurries), since pigments strongly affect the optical properties of paper such as brightness, gloss, smoothness, whiteness, opacity and generate better printing surface properties. Furthermore, the accurate determination of the refractive index plays an important role in material research, for example, to estimate purity of a material. Several methods have been developed for the determination of refractive index of solid material: one method is immersion technique which utilized refractive index matching of known immersion liquid and unknown particles. The principle of the immersion method is to match the refractive index of solid particles with that of the immersion liquid. In the event of a perfect match between the index of the non-absorbing pigments and the immersion liquid, the transmittance will be 100% and the scattering intensity will be approach zero.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 80 (分), Q&A time (質疑応答時間) 20 (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))

プロジェクター使用による講演とその場での簡単な実験提示

- ◆ 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))

同行者による講演の通訳サポート

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

産業技術総合研究所 主任研究員 日比野 謙一

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

Super Science high school の行事と併行して行われた

- 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。):

外国の研究者の仕事を、本人から生の声で聴講できるので、生徒達の集中もだいぶ高く、英語教育その他で貴重な経験として効果が高いように見えた。