Must be typed

（For JSPS Fellow）

Form B-5

Date（日付）
16-10-2017（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）: Dr. Md. Nurul Islam （ID No. P15360 ）

- Participating school（学校名）: Shizuoka Prefectural Nirayama High School

- Date （実施日時）: 12-10-2017 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: （in English） Mechanical Behavior of Lanthanum Oxide ($LaAlO_3$, $LaGaO_3$) and Porous LSCF for SOFC Application.

（in Japanese）

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

During my lecture i covered three points;

1) About myself
2) About my home country
3) About present research

The first half of my lecture was to intoduce myself which includes my educational backgroud and teacing experiences.

Second half was an overview of my home country, Bangladesh, like as its location, area and population as well as some tourist places, different seasons and finally main festivals in our country.

Last half i presented our ongonig research work on solid oxide fuel cell (SOFC) showing some vedio's which showed the working principle of SOFC. Then discussed the importanc of carrying out SOFCs research with lanthanum-based materials and their characterization such as electrochemical characterization and ionic conductivity of lanthanum oxides of doped $LaAlO_3$ and $LaGaO_3$ at their possible use as cathodes and electrolyte materials. After that I explained the experimental condition and results which summarized as:

Uniaxial compression tests were performed at different temperature for $LaAlO_3$ and $LaGaO_3$ and at room temperature for porous LSCF. Ferroelastic domains were observed in all samples. Temperature variation experiments were performed at 93K, 193K, 293K, 393K, and 553K. $LaAlO_3$, $LaGaO_3$ and porous LSCF show non-elastic stress-strain behavior in which hysteresis loops are observed during loading–unloading cycles owing to ferroelasticity. The slope of the stress-strain curve became rising and falling sharply with increasing temperature for $LaAlO_3$ and $LaGaO_3$ respectively. The porous LSCF

samples with the same grain size but different porous structures with 1.5–41% of porosity were prepared using three different pore formers and the ferroelastic parameters were evaluated.

At the end, we wrap up our presentation with a question and answer session. Although they are high school students but they have much interest of knowing about SOFC. I was very much impressed by their interest and their desire to ask question. I hope some of them will be good scientists and good engineers.

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

- Lecture format（講演形式）:

◆Lecture time（講演時間） 60 min（分）, Q&A time（質疑応答時間） 30 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 used

◆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））
Japanese translation by accompanied person,

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

◆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。）:

自分にとって貴重な体験になったことは言うまでもありませんが，韮山高校の皆さんがうらやましく思いました．自分もこのような体験ができていればと思います．このような活動が広く行われるようになればと思います．