Returnee's Report

Name：	Ryosuke KANEKO
Status：	Masters year 2 Nagoya Institute of Technology
Name of Exchange University：	ENSCI/UL
Research Theme：	Elaboration by tape casting and electrical characterization of lanthanum silicate oxyapatite for application as electrolyte material in IT-SOFC
Duration：	2013/ 10/22~2014/1/19 (90days)
NITECH Faculty Advisor：	Associate Prof. Isao Kagomiya
Exchange University Faculty Advisor：	Dr. Pierre-Marie GEFFROY

Research Theme in detail：

<Goal>

Lanthanum silicate oxyapatites are one of the most promising electrolyte materials for Intermediate-temperature SOFC (IT-SOFC). The goal of this study is to elaborate dense membranes by tape casting and pressing technique in order to determine the impact of process route on the electrochemical properties of the electrolyte material.

<Result>

All the parameters of the tape-casting process, such as pressure conditions of lamination, type of balls used during the planetary-milling step, the temperature and the heating rate of the debinding, were optimized in order to improve the relative density of the samples. AC complex impedance measurement showed that the conductivity of samples obtained by the optimized tape-casting process was in good agreement with the conductivities obtained by isostatic pressing process.

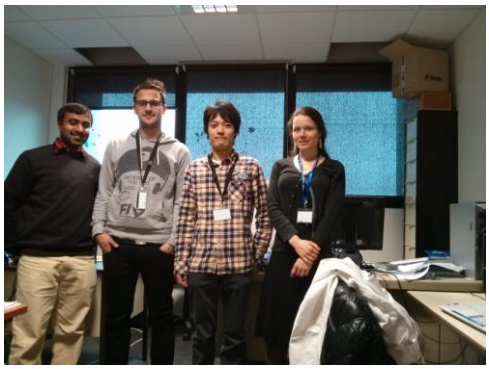
<Achievement>

The process route of elaboration has a low impact on the electrical conductivity of lanthanum silicate oxyapatite.

About the laboratory I was sent to（number of faculty and students, methods used in research activity：

The number of faculty and students was 4, and each of them had different work. Usually I arrived at laboratory at 8:00 – 8:30. Aénor made some indication about experimental process for me. If I had some questions, I didn't hesitate to ask her or Pierre-Marie. In

my final phase, Pierre-Marie held a meeting for me with some persons including Aénor and made a discussion about my data.
My Ambitions： Thanks to very nice care by many persons, I could go forward my experiment carefully and effectively. So in the rest of my research, I will spend my time taking care of younger member's research as far as possible. Additionally I want to tell how excellent French person's behavior toward his research was. And through the study in French, I got accustomed to speaking English and learned how to make a good relationship with foreign people. So after I start to work at a company, I want to try some overseas works to use my English skill.
Advice and suggestions for young researchers who will go to exchange universities ： I advise them to develop their English skill as much as possible in advance because it takes so long time to explain or confim something, which leads to less efficiency and taking someone's time. Actually I was like that in my first one month. So just before they go abroad, maybe it's better to do experiment with thinking some English sentence, for example, "how should I speak in English to explain this work". And if they can speak the local language, people in that country maybe feel a kinship with them. So I recommend them to take some wordbooks.



Laboratory members

In the restaurant

At Jazz Festival