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Osaka University

# Cooperative researches in Tohoku University<sup>†</sup>

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**KEY WORDS:** (Cooperative research) (6 Universities) (Environment and energy materials) (Electronic materials) (Bio- and medical materials) (Tohoku university's activities)

## 1. Introduction

We started a new project, "Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials" from April of 2010 to March of 2015, under cooperative researches by six-leading universities which stand for materials research in Japan. Before this project, we have successfully run the previous project, "Research and Development Project on Advanced Metallic Glasses, Inorganic Materials and Joining Technology" for five years [1-5]. According to its results, we focus on three priority research fields of environment and energy, electronics, and bio- and medical materials in the current project. Nagoya University, Waseda University and Tokyo Medical and Dental University (TMDU) were respectively nominated as powerful universities. The summary figure is schematically shown in Fig.1.

We have published a large number of academic papers and made application for patents under three university's cooperation. We have also conducted personal exchanges during 5 years.

## 2. Project activity of Tohoku University

Our project members of the Institute for Materials Research (IMR) in Tohoku University have been researching in collaboration with members of Osaka University, Tokyo Institute of Technology (TIT), Nagoya University, Waseda University and Tokyo Medical and Dental University(TMDU).

Prof. Dr. Zhang's group has studied glassy alloys as constituent materials for fuel cells and catalytic materials in cooperation with EcoTopia Science Institute (ESI) of Nagoya University.

Prof. Dr. Fukuhara's group has devoted itself to the development of glassy alloy electronics (single electron transistors) which were the initiative of the Institute for Nanoscience and Nanotechnology (INN) of Waseda University.

Prof. Dr. Xie group's members have engaged in glassy alloy development as main materials for bio- and medical materials which are under the conduct of Institute of Biomaterials and Bioengineering (IBB) of Tokyo Medical and Dental University.

Prof. Dr.Wang has organized application of these

specialized fields, as a leader of the practical use acceleration group. The organization table is presented at Table 1.

**Table 1** Organization table for project activity in IMR of Tohoku University

Project Group Name	group leader	content
Environment and energy materials	Prof. Dr. W.Zhang	fuel cells and catalytic materials
Electronic materials	Prof. Dr. M. Fukuhara	development of glassy alloy electronics
Bio- and medical materials	Prof. Dr. G. Xie	development of bio- and medical materials
Practical use acceleration	Prof. Dr. X. Wang	application of three fields

## 3. Future schedule of the project

We have plans to have academic activities per year as follows:

1. International Conference: Visual JW2010, Nov.2010, Osaka
2. Opening Conference: March 10, 2011, Tokyo, Tokyo.
3. Field Meetings of three fields: 3-4 times/year
4. The Steering Committee: Tokyo.
5. Research Report of Cooperative Project: the end of March, 2011.

## References

- [1] Research Report of Cooperative Project,1, Tohoku University (2006).
- [2] Research Report of Cooperative Project,2, Tohoku University (2007).
- [3] Research Report of Cooperative Project, 3, Tohoku University (2008).
- [4] Research Report of Cooperative Project, 4, Tohoku University (2009).
- [5] Research Report of Cooperative Project, 5, Tohoku University (2010).

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**Fig.1** The summary figure of the 2<sup>nd</sup> project, “Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials” derived from the 1<sup>st</sup> project “Research and Development Project on Advanced Metallic Glasses, Inorganic Materials and Joining Technology”.