



# The 10<sup>th</sup> Clayteam Seminar

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**Date and Time : Aug 22, 2012(Wed.)13:00-17:00 \*Reception Starts 12:30-**  
**Venue : Seminar Room (2)A+B, Sendai City Information & Industrial Plaza (AER 6F).**  
3-1, Chuo 1-chome, Aoba-ku, Sendai, Miyagi  
**\*Language : Japanese**

<b>Deadline</b> 8/6(Mon.)
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[Program]

- 13:00-13:05 The 10<sup>th</sup> Clayteam Seminar  
【Theme】 ”Functional Composite Material — Fundamental and Recent Development ”  
【The Opening Remark】 Dr. Takaaki Hanaoka, Director, Research Center for Compact Chemical System, AIST
- 13:05-14:10 【Chairperson】 Dr. Hiromichi Hayashi, Advanced Functional Materials Team, Research Center for Compact Chemical System, AIST
- Speaker1 Keynote  
“Functionalization of Thermostable Polymers -Polyimides”  
Associate Prof. Takashi Yamashita (Associate Professor, Tokyo University of Science)
- 14:10-14:20 Break
- 14:20-15:25 【Chairperson】 Dr. Hiromichi Hayashi, Advanced Functional Materials Team, Research Center for Compact Chemical System, AIST
- Speaker2  
“Property and Application of Smectite”  
Dr. Keizo Suzuki (Specialized Researcher, Hokkaido University)
- 15:25-15:35 Break
- 15:35-16:40 Speaker3  
“Clay Mineral-Based Composite Material with Bioactive Function”  
Dr. Hisao Abe (Environment-Functional Material Director, Ceramic Research Center of Nagasaki)
- 16:40-17:00 【The Closing Remark】

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[Get-Together-Reception]

Venue : Hall A-1, TKP Garden City Sendai (AER 21F)  
Fee : 5,000yen

\*Please note that there are cases information is changed.

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<Short Abstract>

[Speaker1] **“Functionalization of Thermostable Polymers - Polyimides”**

**Associate Prof. Takashi Yamashita (Associate Professor, Tokyo University of Science)**

Polyimides are one of the thermostable polymers with mechanical strength, insulating, radiation stability and film forming properties. Charge transfer structure is one of the key features of the polyimides in performing those characteristics. Analysis of the charge transfer gives us the information about microstructure of amorphous region in the polyimides. Control of the properties of polyimide such as transparency or refractive indices can be possible by the control of the charge transfer in the polyimides.

In this presentation, fundamental feature of polyimide will be introduced, and then some examples of functionalization of the polyimides will be discussed.

[Speaker2] **“Property and Application of Smectite”**

**Dr. Keizo Suzuki (Specialized Researcher, Hokkaido University)**

Smectite is a group name of clay minerals that have unique characteristics, such as swelling property and cation exchange capacity. Members of smectite include montmorillonite, beidellite, saponite, hectorite, and stevensite. Montmorillonite is a main constituent of bentonite, and is widely distributed throughout the world. Properties of montmorillonite vary significantly, depending on their localities. In the lecture, I will discuss the basic characteristics of montmorillonite and the causes that properties of montmorillonite make different. I will also briefly discuss some minerals related to montmorillonite, such as expandable synthetic micas.

[Speaker3] **“Clay Mineral-Based Composite Material with Bioactive Function”**

**Dr. Hisao Abe (Environment-Functional Material Director, Ceramic Research Center of Nagasaki)**

The clay mineral-based composite materials with bioactive function such as antibacterial or antifungal, are prepared by intercalation of organometallic complexes into montmorillonite interlayers in aqueous suspension. Organometallic complexes of clay interlayer are gradually eluted into the water, as a result, the bioactive effect is brought over a long period. Another type of clay mineral-based composite materials are prepared by mixing the essential oil compounds with dehydrated montmorillonite, from which gaseous essential oil compounds are gradually released in the air. In this presentation, preparation and application of the above composite materials are introduced.