The 13th Clayteam Seminar

Date and Time : May 10, 2013(Fri.)13:00-17:00 *Reception Starts 12:30-
Venue : Meeting Room 1, Bio-IT Research Building (11th Floor), AIST Tokyo Water Front
2-3-26 Aomi, Koto-ku, Tokyo,135-0064, Japan
***Language : Japanese**

[Program]

13:00-13:10 The 13th Clayteam Seminar
【Theme】"Product Design and Development of Next-Generation Composite Materials"
【The Opening Remark】 Dr. Takaaki Hanaoka, Director, Research Center for Compact Chemical System, AIST

13:10-14:10 【Chairperson】 Dr. Takeo Ebina, AIST
Speaker1 Keynote
"Design (Automobile) & Globalization"
Mr. Toyotaka Ikeda (Adviser, Smart Engineer Co. Ltd.)

14:10-14:40 Speaker2
"CS Design: Space and Color"
Mr. Masao Kobayashi (Chief Designer, Nakagawa Chemical, Inc.)

14:40-15:20 Speaker3
"ME (Mass Engineering) and Strategies to realize Weight Reduction of Automobiles "
Mr. Gosaku Terabayashi (President, Smart Fiber Design Association Co., Ltd.)

15:20-15:40 Break

15:40-16:10 【Chairperson】 Dr. Hiromichi Hayashi, AIST
Speaker4
"Numerical Modeling and Multi-scale Analysis of Textile Composites"
Dr. Tetsusei Kurashiki (Dept. of Management of Industry and Technology, Graduate School of Eng., Osaka Univ.)

16:10-16:40 Speaker5

15:35-16:40 Speaker6
"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】

[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.

The 13th Clayteam Seminar

<Short Abstract>

[Speaker1] **"Design (Automobile) & Globalization"**
Mr. Toyotaka Ikeda (Adviser, Smart Engineer Co. Ltd.)

* The world is witnessing rapid globalization in culture as well as politics and economy. At the same time, regional unification has been accelerated in Europe and Asia.
* Design is originally one of the culture itself in each country or territory and for this reason, it plays a significant role to bring affluence in culture.
* The changeable weather in Japan seems to have fostered both positive and negative aspects in our national character: a delicate and tender sensitivity mixed with a nervousness which often prevents us from seeing the woods for the trees. Together with its unique aesthetic sense, this delicate sensitivity has benefited the processing of products so called "Simple & Profoundness/Light, Thin, Short, and Small, which has made inroads in export markets.
* The world is shifting from a mass-production, mass-consumption society to an ecological and recycling society. Furthermore, the rapid globalization of ICT (Intelligent Communication Technology) is changing dramatically the relationships between producers and consumers, production methods and distribution methods.
* Thinking of the Earth, we must face fundamental questions to human beings seriously, "What is betterment of life?" and "What is real affluence?"

[Speaker2] **"CS Design: Space and Color"**
Mr. Masao Kobayashi (Chief Designer, Nakagawa Chemical, Inc.)

Adhesive marking sheet known as "cutting sheet" first created in 1966 as a substitute for painting material. For half-century-long since then, thanks to its versatility, this material with a simple structure consisting of PVC film lined with glue has been utilized in a variety of scenes transforming its shape and extending the range of expressions. The seminar is on the course of advancements of and future prospects for the material.

[Speaker3] **"ME (Mass Engineering) and Strategies to realize Weight Reduction of Automobiles "**
Mr. Gosaku Terabayashi (President, Smart Fiber Design Association Co., Ltd.)

1.To reduce CO2 is urgent issues for control of the impact because of global warming.
2.Seeing the ratio of exhaust CO2 of all industry of the world or all kind of vehicles or all condition vehicles ,it can be said that the cars driving condition is the biggest of the most amount of CO2. So the improvement of mileage is important issues.
3.In view of regulations or tax to the improvement of mileage is the most issues to solve for the vehicle-manufacturers which brings the customers satisfaction. Regulation in Europe,
North America and Japan were applied one after the other from 2012,and full-dress

Regulation started on 2015. The system of tax was applied in main country of Europe from 2002 and was expanded on 2008.

4.The reduction the exhaust CO2 as to vehicles the improvement of mileage is effective and the reduce of weight of vehicles is effective. It seems that Japanese vehicle manufacturers have developed by different strategy from above mentions. We used heavy and big model cars.

The construction and material of vehicles are important according to the study of reduce the weight of vehicles

5.Steel panels of vehicles has been studied to be light weight. Shell structure,

Welding and high tension steel-panel has been made better use. But object of light weight is high that these ways are not enough available. Without losing basic performance of vehicles to realize rebel of 3 degrees by models, it is necessary to reconsider the material of the constructions.

6.Kind to the environment recycle safe to health and available to steady supply of resources those material are demanded. Develop of next generation composite materials is just meet the demand of age.

[Speaker4] **"Numerical Modeling and Multi-scale Analysis of Textile Composites"**

Dr. Tetsusei Kurashiki (Dept. of Management of Industry and Technology, Graduate School of Eng., Osaka Univ.)

For an evaluation of mechanical properties for textile composites with several design parameters, the numerical simulation with multi-scale analysis is introduced with several numerical and experimental results. The main contents are as follows; (1) Mesoscopic modeling and analysis of textile composites based on mesh superposition method, (2) Estimation of microscopic strength with oblique unit model / Estimation of resin flow based on Moving Particles Semi-implicit method, (3) Macroscopic mechanical behavior of winding vessels of fuel-cell electric vehicles.

[Speaker5] **"Transparent incombustible glass fiber reinforced plastic with clay coating"**

Mr. Yuki Ito (Chief, Miyagi-Kasei Co., Ltd.)

There are some methods to improve flame retardancy of organic material, but none of them are satisfactory. We found that the flame retardancy can be dramatically improved by using a clay film coating was confirmed. Moreover, the developed new multilayered composite material is excellent in transparency and mechanical streangth. In this lecture, the technique of new compisite material, fire-resistant evaluation, the example of application, etc. are introduced.