The 18th Clayteam Seminar

"Product Development through Functional Material Innovation"

Date and Time : Aug. 22, 2014 (Fri.)13:00-17:45 *Reception Starts 12:30-
Venue : Hall D, AER 30th Floor, TKP Garden City Sendai
3-1, Chuo 1-chome, Aoba-ku, Sendai, 980-6121, Miyagi, Japan
***Language : Japanese**

[Program]

13:00-13:10 The 18th Clayteam Seminar
【The Opening Remark】

13:10-14:10【Chairperson】Dr. Ryo Ishii, AIST
Speaker1 Keynote
"Development of OLED-TV and Its Future Technological Evolution"
Tetsuo Urabe (Executive Alumnus, Sony Corporation, Representative Organic EL Symposium)

14:10-14:40 Speaker2
"METI's Political Issues and Approaches to Fine Chemicals Industry"
Norihisa Fukaya (Ministry of Economy, Trade and Industry)

14:40-15:10 Speaker3
"Development of "Super Claist" that Combines Gas Barrier Properties and Heat Resistance"
Dr. Takeo Ebina (AIST)

15:10-15:30 Break

15:30-16:00 【Chairperson】 Dr. Hiromichi Hayashi, AIST
Speaker4
"Development of Switchable Mirror Window with High Shading Performance"
Dr. Kazuki Yoshimura (AIST)

16:05-16:35 Speaker5
"Development of Flexible High Performance Thermal Insulating Materials via High Pressure Phase Control"
Dr.Satoshi Yoda, P.E. Jp (AIST)

16:40-17:40 Speaker6
"Flexible Display Materials Market 2014"
Tomoko Funaki (Yano Research Institute Ltd.)

17:45 【The Closing Remark】

［Get-Together-Reception］
Venue: Hall C, TKP Garden City Sendai (AER 30F)
Fee: 5,000yen

The 18th Clayteam Seminar

<Short Abstract>

[Speaker1] **"Development of OLED-TV and Its Future Technological Evolution"**
Tetsuo Urabe (Executive Alumnus, Sony Corporation, Representative Organic EL Symposium)

We launched world first OLED TV on November 2007, and I would like to look back upon how it has developed. OLED technology has not still surpassed LCD, however I strongly believe the glorious future of OLED technology and I also would like to explain this.

[Speaker2] **"METI's Political Issues and Approaches to Fine Chemicals Industry"**
Norihisa Fukaya (Ministry of Economy, Trade and Industry)

[Speaker3] **"Development of "Super Claist" that Combines Gas Barrier Properties and Heat Resistance"**
Dr. Takeo Ebina (AIST)

We have been developing film composed mainly of clay "Claist". By improving clay raw materials, we successfully developed a new type of Claist with the barrier performance far beyond the conventional Claist film for hydrogen and water vapor. In addition, the development of a film maintains transparency at high temperatures is discussed. This presentation also prospects a development of "Super Claist" that combines these excellent properties.

[Speaker4] **"Development of Switchable Mirror Window with High Shading Performance"**
Dr. Kazuki Yoshimura (AIST)

Energy performance of buildings and automobiles strongly depends on the shading performance of window. With shading sunshine, the cooling load can be reduced. Our group is developing 'switchable mirror window' which can be switched between transparent and mirror states. Recently, we succeeded in improvement of durability and optical property of the material, as well as in development of practical and safe switching method. I will introduce the outline of switchable mirror window and the stage of the art of development.

[Speaker5] **"Development of Flexible High Performance Thermal Insulating Materials via High Pressure Phase Control"**
Dr. Satoshi Yoda, P.E. Jp (AIST)

High performance thermal insulation materials have received increasing attention for energy conservation. Vacuum insulation panel (VIP) is known for its best insulation performance. However VIP is less flexible and cannot be cut to fit, and it is difficult to maintain VIP's vacuum over a long period of time. Thus VIP cannot be used as conventional insulation materials. We have developed a

new fabrication route for polymer–silica composite foams which includes phase control polymer, silicon alkoxide, and CO2 mixture under high pressure. The method can provide a new flexible and high performance thermal insulating material with low cost. In this presentation, trends in R&D on thermal insulating materials and recent research activities in our lab are introduced.

[Speaker6] **“Flexible Display Materials Market 2014”**

Tomoko Funaki (Yano Research Institute Ltd.)

Potential replacement of thin glass, the current major material for flexible display substrates or covers, by plastic films is attracting much attention. In order for plastic films to actually replace thin glass they must pass very difficult conditions such as having water vapor barrier properties, super smooth surface, heat-resistance, a low linear expansion coefficient, and no surface defects. Such development is in progress by multiple manufacturers. On the other hand, the glass manufacturers are developing a series of super-thin sheet glass available for Roll to Roll.

The both materials have their advantages and disadvantages so that the winner of the showdown is yet to be clear. In any event, a manufacturer of the flexible display materials is required to be a development partner of the final products and a creator of the market, rather than being a mere supplier of the materials.