2013 NIMS CONFERENCE Structure Control of Atomic / Molecular Thin Films and Their Applications

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July 1 NIMS Award Ceremony & Lecture Prof. Hideo Hosono (Tokyo Institute of Technology, JAPAN)

Plenary Lectures

Prof. Roy Gordon (Harvard University, USA) Dr. Kazuhito Tsukagoshi (NIMS, JAPAN) Prof. Omar M. Yaghi (UC Berkeley, USA) Prof. Tetsuo Tsutsui (CEREBA, JAPAN) Prof. Hans-Joachim Freund (Fritz-Haber-Institut der Max-Planck-Gesellschaft, GERMANY)

July 2, 3

Organized Sessions OS-1: Organic Layer Electronics - Organic Material and Interface -OS-2: Ultra-Thin Film Technology OS-3: Nano-scale Characterization OS-4: Atomic Layer Deposition Technology and Its Application OS-5: Advanced Fusion Materials : New Functionality by Cooperative Organic/Inorganic Compositions

Poster Session

Call for Papers for Poster Session Submission Deadline: May 17, 2013

National Institute for Materials Science (NIMS)

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http://www.nims.go.jp/nimsconf/2013

7/1, -3, 2013 Tsukuba International Congress Center EPOCHAL TSUKUBA Registration fee: Free Online Registration Deadline: June 23, 2013 (http://www.nims.go.jp/nimsconf/2013)



2013 NIMS CONFERENCE Structure Control of Atomic / Molecular Thin Films and Their Applications July 1-3, 2013

Tsukuba International Congress Center (Epochal Tsukuba) http://www.nims.go.jp/nimsconf/2013

Aim and scope:

NIMS Conference 2013 focuses on new electronics from the view point of new materials, structures, synthesis tools, and characterizations for the innovation in nano electronics devices.

Electronics is the base for ubiquitous network society. In the past few years, we have seen dramatic rapid development in networking that was brought about by electronics. Internet, cloud computing and smart phones are good examples of such developments.

The modern electronic devices have been improved tremendously at faster speed, at the same time, lowering the power consumption by utilizing large scale integrated circuit (LSI). Here, the fine pattering and high density packing based on " Moore' s Law" has been employed. However, the scaling down of the LSI is now thought to have come close to its limits. To overcome the limitation of LSI, development of new materials and new device structures are needed to circumvent these severe problems.

New candidate materials for future electronics are organic molecules. They are attractive materials for future nano electronics because of their unique property resulting from various chemical bonds. Fusion between molecules and inorganic materials allows a new degree of functionality which is difficult to achieve with conventional semiconductor materials. For example, new memory devices using molecules have recently been successfully demonstrated.

To control the nano structures, an atomic layer deposition (ALD) has become more popular and showed that it is a technique of choice for manufacturing two dimensional (2D) structures for electronic devices. Although there is a wide range of 2D structured materials that can be grown by ALD, many other important materials cannot be deposited currently by this technique in a cost-effective way. As a totally different method to make 2D structures, nano sheets have attracted a great attention. Nano sheets are formed by removing mono layer from oxide crystals in solvent. By stacking different nano sheets in a desired configuration, new materials can be created artificially with a novel functionality. Nano sheets are going to be promising materials for memory devices where higher dense packing is required.

Nano structured materials and/or devices at nano scale dimensions are vital for development of nano-electronics. Therefore, developments of new characterization tools are important as well. Characterizations by strong X-ray source or neutron scattering have contributed significantly to materials development for nano electronics.

In order to discuss these key issues, NIMS is going to organize the "NIMS Conference 2013" entitled "Structure Control of Atomic / Molecular Thin Films and Their Applications" from July 1st to 3rd, 2013 in Tsukuba. In this conference, we will discuss the new materials, the new growth technology, synthesis methods, and sophisticated characterization tools.

We hope this conference will provide new insight and idea in nano electronics based on materials science.

Program at a glance

[July 1, Monday]

NIMS Award Ceremony & Lecture Prof. Hideo Hosono (Tokyo Institute of Technology, JAPAN)

Plenary Lectures

Prof. Roy Gordon (Harvard University, USA) Dr. Kazuhito Tsukagoshi (NIMS, JAPAN) Prof. Omar M. Yaghi (UC Berkeley, USA) Prof. Tetsuo Tsutsui (CEREBA, JAPAN) Prof. Hans-Joachim Freund (Fritz-Haber-Institut der Max-Planck- Gesellschaft, GERMANY)

[July 2, Tuesday - 3, Wednesday] Organized Sessions

- OS-1: Organic Layer Electronics - Organic Material and Interface -
- OS-2: Ultra-Thin Film Technology
- OS-3: Nano-scale Characterization
- OS-4: Atomic Layer Deposition Technology and Its Application
- OS-5: Advanced Fusion Materials : New Functionality by Cooperative Organic/Inorganic Compositions

Poster Session (July 2)

NIMS Award 2013

NIMS will present the NIMS Award to a person who has made distinguished achievements in research and development in the field of electronics materials in recent years and as well as valuable contribution to NIMS previously or in the near future.

The award-winning lecture will be given by the awardee on July 1.

Registration (Deadline: June 23, 2013)

The registration fee for the NIMS Conference is free. For all participants, the online registration(http://www.nims. go.jp/nimsconf/ 2013) is highly recommended. The registered participants can receive admission to all scientific sessions, an abstract book and a ticket for the conference banquet (July 1).

Venue

Tsukuba International Congress Center (EPOCHAL TSUKUBA) 2-20-3 Takezono, Tsukuba, Ibaraki 305-0032, Japan tel: +81-29-861-0001 fax: +81-29-861-1209 (http://www.epochal.or.jp/eng/index.html)

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