

Asian Research Network

Beyond the Continent



BEYOND THE CONTINENT

Asian Research Network (ARN)

About ARN

We are committed to fostering talented human resources, creating a research network in which researchers in the region share their knowledge and experiences, and establishing a future-oriented partnership to globalize our research capabilities. To this end, we will achieve excellence in all aspects of education, research, and development in the area of fusion research between BT and IT based on NT in general. We will make a substantial contribution to the betterment of the global community as well as the Asian society.

Vision

- Integrating science in Asia for our better future
- New initiatives and networking in science, technology and education
- Global competitiveness in strategic programs
- Best research and education programs for interdisciplinary collaborative research

ARN-Korea Headquarter



Fusion Technology Center (FTC), Hanyang University, Seoul

History

- 2011**
 - ARN Summer Camp 2011
 - The 2nd India-Korea Joint Workshop
- 2010**
 - 2010 HYU-RIKEN Workshop
 - KOREA-INDIA Forum
 - AsiaNANO 2010
- 2009**
 - Prime Minister of Japan Visit
 - Minister of S&T of Thailand Visit
 - Deputy Director of NSF Visit
- 2008**
 - MOU between HYU and RIKEN
 - Grand Opening of FTC and RIKEN
- 2007**
 - Fund from Samsung Electronics
- 2006**
 - Ground Breaking of FTC
- 2005**
 - HYU-RIKEN Collaborative Lab Open
 - KICOS Grant for RIKEN Invitation
 - Seoul Metropolitan City Grant for RIKEN Invitation
- 2003**
 - Initiation of RIKEN Invitation



Participating Institutions



KOREA

Hanyang University
 Samsung Electronics
 Electronics and Telecommunication Research Institute
 Seoul National University
 Institute of Pasteur Korea
 Korea Research Institute of Chemical Technology
 Korea Advanced Nano Fab Center

JAPAN

RIKEN

CHINA

National Center for Nanoscience and Technology
 Peking University

SINGAPORE

National University of Singapore
 Nanyang Technological University (In Progress)

INDIA

National Chemical Laboratory
 Shivaji University
 Indian Institutes of Science Education and Research
 Pune University
 Indian Institute of Technology-Madras (In Progress)
 Indian Institute of Science (In Progress)

USA

University of Texas at Dallas
 UCLA (In Progress)
 Stanford University (In Progress)
 University of Maryland (In Progress)

ISRAEL

Weizmann Institute of Science (In Progress)
 Hebrew University Jerusalem

THAILAND

National Science and Technology Development Agency (In Progress)

Research Activities

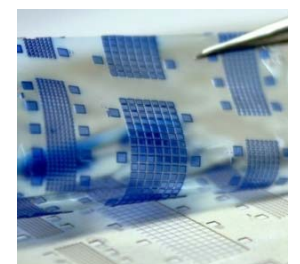
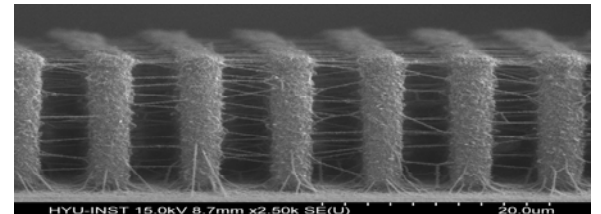
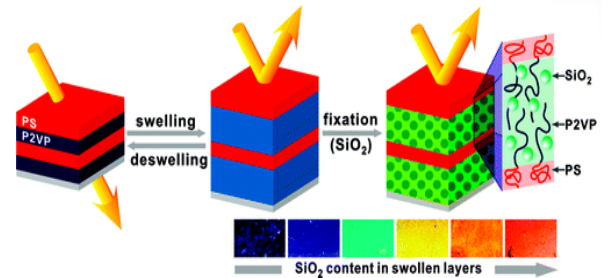
Major direction of research at ARN is aimed at fusion research between BT and IT based on NT in general. The research will be carried out through joint research projects among the research organizations who have signed mutual research agreements through networking and mutual utilization of required research facilities.

NT research which encompasses nanomaterials, nanodevices and nano fabrication alone may be limited in its application potential unless it is fused with pertinent BT and IT technologies.

ARN at this time is currently undertaking these BT/IT fusion research with NT in the broad areas of biomimetic materials, biomimetic sensors, responsive photonic materials, ultrasensitive nanosensors, biocomputers based on slime mold and microbes, random number generation chips, 3-D nanonetwork, nanoscale molecular engineering and self-assemble nanostructures. More diverse areas of research will be included in the future.

Nanomaterials

- Biomimetic materials that mimic the function and structure of natural substances and systems
- Cell membrane mimicking signal amplification sensors
- Responsive photonic materials such as photonic gels and crystals
- Graphene and graphene derivatives
- Functional nanofibers

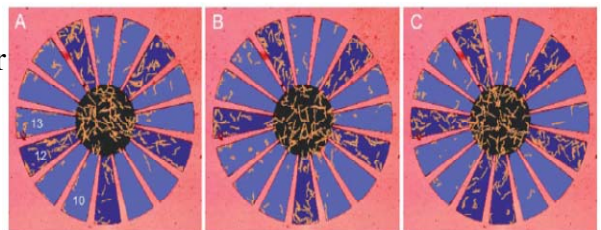


Nanodevices

- Ultrasensitive nanosensors that can monitor below femtomolar concentration
- Electronic nose, tongue, skin, ear and eyes
- Biocomputers based on slime mold and microbes
- Self-organized photonic pattern-rhythm generator
- Random number generation chips based on natural random processes

Nanofabrication

- Three dimensional CNT, metal, inorganic and organic nanonetwork structures
- Nanoscale molecular engineering for control of molecular orientation and optimization of device performance
- Fabrication of nanostructures based on molecular self-assembly
- Nanostructures based on atomic layer deposition (ALD) process
- Arrayed nanostructures from inkjet printing



Education Activities

ARN promotes the building of infrastructure which is required to undertake joint researches among the Asia Pacific countries through networking and providing education opportunities for the participating organizations. This effort contributes to the increase of research capabilities through mutual utilization of manpower and use of research facilities.

These activities will provide opportunities for researchers and students in Asia to upgrade the research capabilities as well as in securing high caliber researchers.

◆ Department of Convergence Nanoscience

The department aims to teach and train graduate students the modern Convergence Nanoscience in the field of NT-BT and NT-IT, ranging from Nanoscience-related fundamental Chemistry and Physics to nanomaterials synthesis, characterization, and device fabrication.

<http://dcn.hanyang.ac.kr/>

◆ Honors Program

The Honors Program provides the selected students with superior capability with in-depth educational curriculum, focused research, mentoring, internship, opportunity to study abroad and related scholarship support.

<http://honorsprogram.kr/>

◆ RIKEN Joint Graduate School Program

“International Program Associate(IPA)”

RIKEN invites non-Japanese doctoral candidates attending a Japanese or overseas graduate school that is participating in RIKEN's Joint graduate school program to conduct research at RIKEN under the supervision of RIKEN scientists as part of their work toward obtaining a Ph.D.

◆ Noyori Summer School

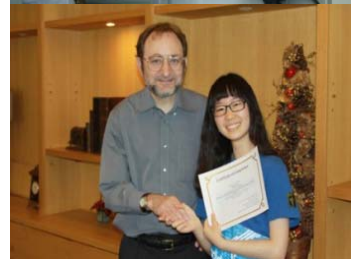
The Noyori Summer School provides an opportunity for interaction among young researchers from various research fields and countries. The summer school is a two-day event featuring presentations and other activities, including a discussion with RIKEN President Ryoji Noyori.

◆ International Internship Program

This organization helps Korean students to obtain opportunities for practical training and employment. At the same time, IAESTE provides assistance for foreign students who want to acquire practical experience within the Korean universities and industry.

◆ Research Experience for Undergraduate Students(REU) Program

The NTU REU program allows undergraduate students to work on independent research projects involving direct interaction with research scientists, post-doctoral scholars, and graduate students at NTU. This program includes weekend trips and a scientific forum where students present their research and meet local science leaders.



International Cooperation Network

ARN makes intensive effort to enhance international partnership between participants in various forms such as laboratory network, human network and information network. In the course of the effort, we emphasize close communications, sharing research equipment and facilities, performing joint research projects, exchanging knowledge and so on. To achieve this goal, we actively host or sponsor international symposiums or workshops regularly, making effort to sign MOUs for international cooperation and invite honored guests/visitors to ARN.

Organizing/ Sponsoring International Symposiums & Workshops

2007 Jeju 2007 ISPM
2008 Asian Research Network Symposium
2008 Special Symposium on Emerging Science and Technology
2008 Organized Molecular Assemblies and Nanofabrication
2008 2008 HYU-RIKEN Workshop
2009 Asian Research Network Symposium 2009
& the 2nd Texas-Korea Nanotech Workshop
2009 2009 HYU-RIKEN Joint Workshop
2010 2010 HYU-RIKEN Collaboration Workshop
2010 University of Maryland-HYU Symposium
2010 IEEE Nano 2010 Satellite Program KOREA-INDIA Forum
2010 University of Texas at Dallas-HYU Workshop
2010 Asia NANO 2010
2011 The 2nd India-Korea Joint Workshop
2011 RIKEN-HYU Joint Conference 2011
2012 Asia NANO 2012
2012 The 3rd & 4th India-Korea Joint Workshop
2012 The 3rd Texas-Korea Nano Workshop
2012 NanoKorea 2012



2011.12 RIKEN-HYU
Joint Conference 2011



2011.11 The 2nd India-Korea
Joint Workshop



2010.10 Asia NANO 2010



2010.08 IEEE Nano 2010,
Korea-India Forum



2010.08 UTD-INST Workshop



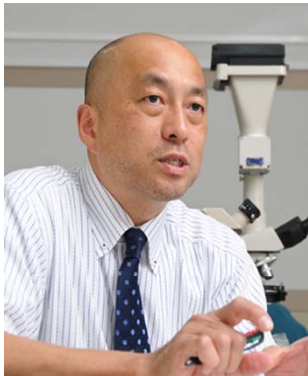
2009.01 Visit of the Prime Minister
of Japan to FTC



"**Hanyang University (HYU)** of Korea and **RIKEN** of Japan, in cooperation with other Asian universities and research institutes, have established the **Asian Research Network (ARN)** with a view to strengthening research and educational cooperation across Asia, as well as tackling issues common to Asian countries. Such issues include low numbers of students pursuing academic careers in science and engineering and the constant stream of excellent researchers moving out of Asia."



Haiwon Lee, Ph.D
Co-director



Masahiko Hara, Ph.D
Co-director

"**ARN** is initially focusing on the areas of nanoscience and nanotechnology, but will expand its scope to include the whole gamut of basic science and technology as the organization develops. ARN's current core cooperation scheme between Korea and Japan will grow to encompass other Asian partners such as China, India, and Singapore, with the goal of creating a borderless research environment. This framework will serve as a catalyst for the sharing of knowledge and experiences among researchers in the region, enabling us to strengthen and expand the network in the years to come."



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