



A Message from the President

by President Etsujiro Shimemura



Interdisciplinary activities are being conducted at universities all over the world, with greater or lesser degrees

of success. If the theory and practices that enable the fusion of different fields are not followed, creative research will not be produced.

As part of the 21st Century COE program, the Center for the Strategic Development of Science and Technology was established at JAIST to discover the underlying theories and the best practices that promote creative research in an interdisciplinary setting. The Center will play an important role in achieving the School of Knowledge Science's mission: to raise the relatively new discipline of knowledge science to worldwide pre-eminence.

In the Center, the theories and techniques of knowledge science will be used to model the process of interdisciplinary knowledge creation, and the developed theories will be applied and improved in the

Continued, page 2

JAIST-COE Program Overview

by Program Leader Prof. Yoshiteru Nakamori

The knowledge base that supports technological creation may well be the most valuable infinite resource in our country. Thus, it is vital to begin to continuously and systematically develop a theory of technology creation, verify the theory in scientific laboratories, and improve it by feedback from practice.

This program will apply knowledge science to the fields of important natural sciences to help researchers produce creative theoretical results. With respect to education, we will train graduate students to become "knowledge coordinators" who can manage creative research activities and "knowledge creators," with advanced research and development skills.

The JAIST 21st Century COE program, "Technology Creation Based on Knowledge Science," has established a center in which scientific and technical development strategies can be formulated in cooperation with outside research organizations. At the same time, we are developing an education system that will fully demonstrate the synergistic effect of combining

different fields. This system will continuously create scientific knowledge, offering an advanced model for setting important research priorities and promoting research and development, thereby affecting the

Continued, page 2



Inside this issue

page 2:
COE Core Members

page 3:
Preview: First International Symposium on Knowledge Management for the Strategic Creation of Technology – March, 2004

page 4:
First International Symposium Technical Program

A Message from the President (con't)

scientific laboratories of JAIST's three graduate schools, Information Science, Materials Science, and Knowledge Science. In short, the Center is the focal point for joining all three major aspects of the JAIST program: theoretical research, practical research, and education.

We look forward to the dual challenge of pioneering theoretical and practical research on knowledge creation and at the same time educating a new generation of young research managers and creative scientists. §

JAIST-COE Program Overview (con't)

management of research and development at other

universities, research institutions, and enterprises.

Part of our mission is to create a global network of scientists and research managers who are want to participate in state-of-the-art research to develop new ways to enhance the creation of advanced science and technology. §

JAIST-COE Program: Core Members

School of Knowledge Science

Prof. Yoshiteru NAKAMORI, Program Leader, *Knowledge Systemization Group Leader*
Prof. Bao Tu HO, *Knowledge Systemization*
Prof. Kozo SUGIYAMA, *Knowledge Systemization*
Prof. Susumu KUNIFUJI*, *Knowledge Creation Support Group Leader*
Prof. Kazunori MIYATA, *Knowledge Creation Support*
Prof. Taketoshi YOSHIDA, *Knowledge Creation Support*
Prof. Akio KAMEOKA*, *Technology & Knowledge Management Systemization Group Leader*
Assoc. Prof. Akiya NAGATA, *Technology & Knowledge Management Systemization*
Assoc. Prof. Ryoko TOYAMA, *Technology & Knowledge Management Systemization*
Prof. Katsuhiko UMEMOTO, *Technology & Knowledge Management Systemization*

School of Materials Science

Prof. Masahiro TAKAGI*, *Biotechnology Group Leader*
Prof. Eiichi TAMIYA, *Biotechnology*
Prof. Nobuhiko YUI, *Biotechnology*
Prof. Mikio MIYAKE*, *Materials & Environment Group Leader*
Prof. Hidenobu HORI, *Materials & Environment*
Assoc. Prof. Hideo IWASAKI, *Materials & Environment*
Prof. Minoru TERANO, *Materials & Environment*

School of Information Science

Prof. Kokichi FUTATSUGI*, *Information Science Group Leader*
Prof. Susumu Horiguchi, *Information Science*
Prof. Makoto MIYAHARA, *Information Science*

*Member, Steering Committee §

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**The First International Symposium on
Knowledge Management for the Strategic Creation of Technology
March 8-10, 2004
Japan Advanced Institute of Science and Technology, Hokoriku (JAIST)
Tatsunokuchi, Ishikawa, Japan**

The Organizing Committee cordially invites all interested researchers and students to participate in this first symposium on the most recent developments in the field of knowledge management and on strategies and techniques for creative research and development. This is an unparalleled opportunity for students, Japanese researchers, and top scientists from all over the world to meet and exchange ideas about one of the most important challenges facing the scientific community today.

Please join us at JAIST in March, 2004. We look forward to seeing you!

Background

The advances in science and technology that brought about the material abundance of the 20th century have led to the need to consider how new value is created by technology in relation to people, society and the natural environment. An immediate need is to produce talented people who can develop and implement knowledge management models for producing management resources and increasing competitive power by combining theories of organizational development, technical management, and strategic management. This is especially important in Japan, a country that aims to become the best technology creating country.

Purpose

The purpose of this international symposium is to exchange knowledge and establish relationships that will help researchers break new ground in the interdisciplinary research field called the Study of Scientific Knowledge Creation.

Scope

This first symposium will examine various facets of scientific knowledge creation, including the theory and practice of creative R&D, knowledge and systems science, knowledge technology and software, and educational programs in Europe and Asia.

Program

The scientific program of invited lectures has been designed to offer a combination of case studies, theory, and practical tools, to stimulate and encourage the young scientists and students who will take the research community forward into the 21st century. For a list of speakers and topics, please see page 4.

Registration

Attendance at the symposium is free. Pre-registration is not necessary; attendees may register at the door.

Conference Language

The official language of the symposium will be English.

Correspondence

For more information about the symposium, please contact:

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The First International Symposium on Knowledge Management for the Strategic Creation of Technology Technical Program

Monday, March 8, 2004

•9:00 – 9:30 Registration

•9:30 – 12:00 Session 1: Introduction to the JAIST-COE Program

1. **Welcome**, Etsujiro Shimemura, President of JAIST
2. **Technology Creation Based on Knowledge Science**, Yoshiteru Nakamori, School of Knowledge Science, JAIST
3. **Knowledge Theory at the Beginning of the Era of the Informational Society and Knowledge Economy**, Andrzej P. Wierzbicki, National Institute of Telecommunications, Poland

•13:30 – 17:00 Session 2: Knowledge and Systems Sciences

1. **Creative Holism: Systems Thinking for Managers**, Michael C. Jackson, University of Hull, UK
2. **Complementarity: Methodological vs. Institutional**, Zhichang Zhu, University of Hull, UK
3. **The Communicative Model and Its Application in Knowledge Science**, Jason Jixuan Hu, WINTOP Consulting Group, USA

Tuesday, March 9, 2004

•9:00 – 12:00 Session 3: Research, Development, and Organization

1. **Developing an Innovative and Effective Technology for a Global Market**, Quamrul Hasan, JAIST
2. **DPP – The Colorful Journey of an Industrial Pigment from the Laboratory to the Market**, Abul Iqbal, IQChem Inc., Switzerland
3. **Organization, Methods, and Technologies for University-Industry Co-Production and Dissemination of Knowledge**, Claude P. Moreau, University of Technology of Compiègne, France

•13:30 – 17:00 Session 4: Approaches to Knowledge Science

1. **Meta-Synthesis System Approach to Knowledge Science**, Jifa Gu, Chinese Academy of Sciences, China
2. **Systems Thinking for Inter-Disciplinary Dialogue**, Gerald Midgley, Institute of Environmental Systems and Research, (ESR), New Zealand
3. **Knowledge Network System: Not Only a Tool, But a Paradigm**, Zhongtuo Wang, Dalian University of Technology, China

Wednesday, March 10, 2004

•9:00-12:00 Session 5: Knowledge and Decision Making

1. **Extraction of Knowledge for Classification of Acute Radiation Syndrome**, E.P. Hofer, University of Ulm, Germany
2. **A Nonmonotonic-Inference Integrated Framework for Decision Support**, Jian Chen, Tsinghua University, China
3. **Augmented Support for Idea Generation for Decision Making**, Xijin Tang, Chinese Academy of Sciences, China

•13:30-17:00 Session 6: Knowledge Technology and Software

1. **Knowledge Creation through Integration of Computational Models**, Xiaoxiang Xia, Dalian University of Technology, China
2. **Improving Retrieval Effectiveness by Integrating Modification-Words with Headwords**, Jiangning Wu, Dalian University of Technology, China and Hiroki Tanioka, JUST SYSTEM, Japan
3. **Framework and Infrastructure of an Organizational Knowledge Portal**, Donghua Pan, Dalian University of Technology, China
4. **Methods and Tools for an Organizational Process Knowledge Portal**, Yanzhong Dang, Dalian University of Technology, China
5. **Method and System of Knowledge Management for SARS Emergency Control**, Lili Rong, Dalian University of Technology, China §