

**Aiming to make Kyoto the City of Nanotechnology—the Region where technologies and engineers match together to make feasible new breeds of science into real businesses, we are to build the clustered Region where nano-related engineering and industry (encompassing everything from scientific research to nano-based products, systems and services) creates the optimal spirals of technologies and industries**

### Overview

The strategic priority of the Region is the re-vitalization of a "Manufacturing Oriented Industrial City: Kyoto" via the collaboration of researchers in different disciplines and in different Universities such as Kyoto University, Kyoto Institute of Technology, and Ritsumeikan University, plus joint efforts with private sector companies. This Cluster's research projects cover nano-sciences, new nano-materials, and nano-devices including nano-biochemicals. Side-by-side with the newly opened Katsura Campus of Kyoto University, and the newly developed "Katsura Innovation Park," an industrial incubating hub will serve as the core site of the Cluster's business creation. Capital intensive equipment invested in by the Cluster are used in so-called "spin-in operations," enabling all researchers and engineers to use centrally maintained equipment in the Nano-Fabrication Center. The Cluster promotes technology transfers from faculties to private sector industries, as well as the encouragement and incubation of spin-off venture businesses.

### Cluster Headquarters

- **President** ..... Masao Horiba (Supreme advisor, Advanced Software Technology & Mechatronics Research Institute of Kyoto [ASTEM])
- **Project Director** ..... Hisashi Tasaki
- **Chief Scientist (CS)** ..... Kazumi Matsushige (Vice President, Kyoto University; Director, International Innovation Center [KU-IIC])
- **Deputy Chief Scientist (CS)** ..... Shizuo Fujita (Professor, Kyoto University International Innovation Center)
- **Science and Technology Coordinators** Osamu Suzawa, Toshihiko Ohura, Akira Imada

### Core Organization

Advanced Software Technology & Mechatronics Research Institute of Kyoto (ASTEM RI)

### Participating Research Organizations

(Bold: Core Research Organization)

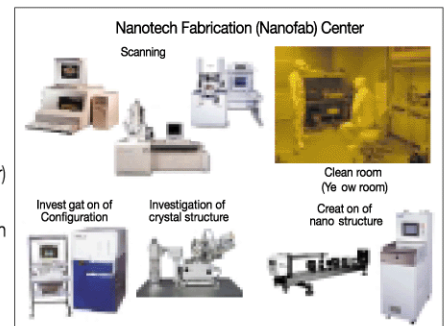
**Industry**··Murata Manufacturing Co., Ltd., Shimadzu Corporation, Dainippon Screen Mfg. Co., Ltd., Kyocera Corporation, Kyoto Instruments Co., Ltd., Teramecs Co., Ltd., Nissin Ion Equipment Co., Ltd., Ceramic Forum Co., Ltd., Omron Corporation, Abel Systems Inc., Samco International Inc., Rohm Co., Ltd., Oike & Co Ltd., Horiba, Ltd., Sixon Ltd., X-ray Precision, Inc., SAK GAKE - semiconductor Corporation, Ion Engineering Research Institute Corporation, Nissin Electric Co., Ltd., Bio-X Inc., Shinwa Chemical Industries, Ltd., KFI, Inc., Gunze Co., Ltd., Towa Corporation, Nano Device And System Research Inc., NTT Photonics Laboratories, Fukuda meta Foil & Powder Co., Ltd., Digital Palette Shibayama Corporation, HONDA DYESTUFFS CO., LTD., High-Polymer Institute Ltd., Xokt Research, Inc., Bio Frontier Institute Inc., Research Center, TOYOBO Co., LTD.

**Academia**··**Kyoto Univ.:** **Graduate School of Engineering; International Innovation Center;** Venture Business Laboratory; Int'tech Center; Graduate School of Engineering; Advanced Research Institute of Nanoscale Science and Engineering; Graduate School of Energy Science

Kyoto Institute of Technology: Cooperative Research Center; Faculty of Engineering and Design; Faculty of Textile Science; Venture Laboratory of the Graduate School

Ritsumeikan Univ. : Department of Robotics Faculty of Science & Engineering

**Government**··Kyoto Municipal Industrial Research Institute



**Project Director**  
**Hisashi Tasaki**

## Creating Identification of Kyoto Industry as "City of Nanotechnology"

This Cluster is moving forward with the creation of a "Nanotechnology City—Kyoto." Under the stimulus of this newly formed Cluster in 2002, the Kyoto San-Gaku-Kou Renkei Kikou (an organization that includes private sector industries, local governments, and academies throughout the Region) was launched, and as a result, all regional organizations have united for new business creation and promotion. The Cluster became also the pump-priming factor for the formation of the "Innovation Plaza Kyoto" (funded by the Japan Science and Technology Agency), and of the "Kyodai Katsura Venture Plaza," an entrepreneur incubating facility of the Japan Regional Development Corporation, both adjacent to the Katsura Campus of Kyoto University. These facilities are meant to serve as the main core for creating the real Cluster in the Region. During fiscal year 2003, at reaching the half-way point of the set schedule, the Cluster made an intensive re-evaluation and re-assessment of research projects, and redirected research investments into newly created projects. By developing and facilitating great numbers of support options for each stage of research projects, the Cluster HQ enhanced on-going research projects into development, merchandizing, and business opening stages. These efforts fostered technology transfers, venture start-ups, and business diversifications of Kyoto industries.

For the further progress of collaborations between industries and academies, the Cluster established the "KYO-NANO Community" as the vehicle for seeds-needs matching, and for triangle collaboration promotion between academia, the public sector, and the private sector in the Region, including exchanges of technology and business information, and distribution of scientific news at the horizon. The Cluster also holds Nanotechnology Forums and Seminars for citizens and children in the Region. <http://www.astem.or.jp/kyo-nano/>.

**Hisashi Tasaki:** After serving as managing director and CSO/CTO/CIO at OMRON Corp., currently active as adviser to the National Technology Agency of Finland (TEKES), and as guest professor at Kyoto Institute of Technology.

## Outline of the Joint Research by Industry, Academia and Government

Because the industry in the Region is dense with the manufacturing domains of machinery, metal and electronic/electric, this Cluster aims at providing a broad range of nano-oriented applied sciences including nano-bio, nano-medical technologies for creeping medical-engineering evolved by "Bio-City Kyoto Plan" of June 2002.

Further, the Cluster is making many informal links and formal alliances with other clusters, public sector programs, and private sector programs.

### Research and development programs

- Nano-manipulation and nano-processing.
- Nano based photonic and electronic devices for next-generation.
- Nano-bio devices (hybridization of bio and nano technologies).
- Nano engineering infrastructures

