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NIMS and DENKA to Establish a Center of Excellence (COE) for Next Generation Materials

National Institute for Materials Science
DENKI KAGAKU KOGYO KABUSHIKI KAISHA (DENKA)

On June 3, 2013, National Institute for Materials Science (hereinafter “NIMS”; president: Sukekatsu Ushioda; Head Office: Tsukuba City, Ibaraki Prefecture) and DENKA (president: Shinsuke Yoshitaka; Headquarters: Chuo-ku, Tokyo) signed an agreement for the establishment of the NIMS-DENKA Center of Excellence for Next Generation Materials.

The new Center of Excellence (COE) aims to become a world-leading research organization in the field of material science, exploring cutting-edge R&D fields as it seeks to discover and incubate innovative seed technologies. While staying in tune with industry needs, it will seek to contribute to the development of an environment-friendly society by utilizing the fruits of its research in the creation of next-generation environment- and energy-related materials.

Signing ceremony on June 3, 2013
(left: Mr. Sukekatsu Ushioda, NIMS president; right: Mr. Shinsuke Yoshitaka, DENKA president)

DENKA has been partnering with NIMS in technological development for a number of years to provide markets worldwide with such unique products as the DENKA LaB_6 Cathode, which incorporates a LaB_6 single crystal and is widely used in electron guns for electron microscopes, and the β SiAlON Phosphor for white LEDs. In recent years, as it faces ever-changing customer needs and instability in the global market, DENKA has recognized a growing need to speed up innovation. DENKA thus decided to establish a COE in tandem with NIMS to further enhance open innovation, namely, joint research initiatives aimed at creating epoch-making products and solutions.

Reference:

Outline of the Center:

(1) Official name:
NIMS-DENKA Center of Excellence for Next Generation Materials
Head of the center:
Masanori Mitome (International Center of Materials Nanoarchitectonics (MANA) group leader, Nanotubes Group, Nanotubes Unit)

(2) Location:
1-1 Namiki, Tsukuba, Ibaraki (on NIMS' Namiki-site premises)

(3) Main operations:
Research into next-generation functional materials:

(4) In addition to the development of core technologies related to phosphors used in LEDs, electronic circuit substrates, thermally conductive substrates for power devices and other next-generation high-performance materials, the Center will spearhead broad-based collaborative research between DENKA and NIMS, bringing together both parties' technological capabilities and ideas to facilitate the creation of innovative products and solutions that meet a range of needs and applications beyond existing or peripheral fields.

Joint R&D Achievements of NIMS and DENKA

In 1983, DENKA commercialized single-crystal LaB_6 (lanthanum hexaboride) developed by the National Institute for Research in Inorganic Materials, the precursor to NIMS, creating the DENKA LaB_6 Cathode, a highly efficient electron gun. This product is still widely used in electron microscopes around the world today. In 2009, DENKA and NIMS developed a phosphor for LEDs—one of the most popular types of energy-saving lighting. This phosphor is increasingly used in such applications as backlights for liquid crystal TV monitors and lighting devices. We have been awarded the Harushige Inoue Award* for both the cathode and the phosphor.

*A prestigious award given by the Japan Science and Technology Agency in recognition of contributions made through the commercialization of innovative technological seeds from universities or other research institutions to advancements in science and technology that, in turn, facilitate economic development and the improvement of social welfare.

Inquiries:

For more detail

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Outline of NIMS

Unique in Japan, NIMS is a non-governmental organization that undertakes R&D in the area of material science. In line with its philosophy “material research that is responsive to the needs of society,” NIMS pursues research with an eye to creating materials that will provide value to future generations.

NIMS was established in April 2001 through the merger of the National Research Institute for Metals and the National Institute for Research in Inorganic Materials, both of which were under the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Since then, NIMS has been supervising and promoting basic research initiatives and development activities in the field of material science while strengthening collaboration with research institutions all around the world, with the aim of advancing technological expertise in this field.

To realize the abovementioned philosophy, NIMS is pushing forward with a number of research activities, building a flexible research network around 20 pillar projects in order to integrate expertise from a range of fields. As an organization dedicated to applying the perspective of material science in resolving various problems confronting society, NIMS put the utmost emphasis on “providing solutions for social issues regarding the environment, energy and resources” in its third mid-term plan launched in April 2011. NIMS is consistently seeking to contribute to society through basic and fundamental R&D initiatives.

For the detail of NIMS, please also visit the following website:
http://www.nims.go.jp/eng/index.html

Outline of DENKA

Ever since its founding in 1915, DENKA has created a wealth of products by applying its technological expertise in such fields as carbide manufacturing and pursued the ultimate in *Monozukuri* (Japanese-style craftsmanship) while changing its output in response to the needs of the times. At present, the scope of DENKA’s business operations extends to a range of fields encompassing organic and inorganic materials, polymer processing, electronic materials and pharmaceuticals.

As it approaches to the centennial of its founding in 2015, DENKA is promoting the DENKA100 Companywide initiative, which sets forth the ideal for a company capable of thriving for another century as it seeks to contribute to society while achieving sustainable growth. Fully committed to maintaining an earnest attitude and sincerity in its dealings, both of which are core company values, DENKA will pursue lasting trust as an outstanding manufacturer over the next 100 years.

In addition, in April 2013 DENKA formulated new growth strategies under the DENKA100 management plan, with the target year set at fiscal 2017. The new strategies consist of: creating the most optimal production system; scrutinizing every cost element; and focusing management resources in such growth fields as the environment, energy, infrastructure and healthcare to facilitate next-generation product development, thereby addressing the latest customer needs and securing earnings in growth markets.

Looking ahead, DENKA will promote broad-based collaborative research with NIMS through the exchange of researchers as well as by holding technological seminars and other initiatives utilizing the DENKA Innovation Center main building, a new facility being constructed in Machida City, Tokyo, scheduled for completion in spring 2014.

For details on DENKA, please also visit the following website:
http://www.denka.co.jp/eng/index.html