

Detection of chemicals hidden in opaque containers

The objects are colored temporally by multiphoton excitation using near-infrared femtosecond laser

We have developed a new spectroscopic system that can measure transient absorption spectra and 3D shapes of target objects that are hidden in an opaque container such as a colored glass bottle, an envelope, and a plastic bag. Multiphoton excitation by a femtosecond near-infrared laser pulse, which easily penetrates into the opaque containers, can induce transient coloring of the target material, and the transient absorption spectra can be measured by the light pulse following the excitation pulse with a controlled delay time. Even 3D imaging of the object is possible when the laser beam is spatially scanned since only the laser focus point gives the transient absorption signals. We are now trying to apply this system to illegal drug detection.

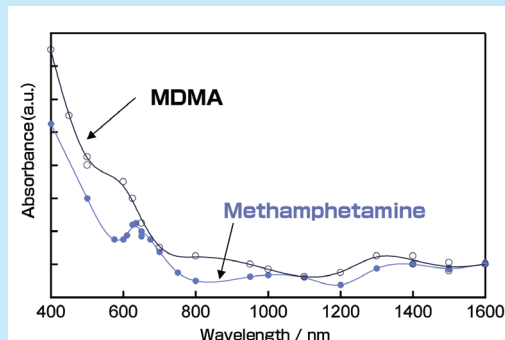
Akihiro Furube

Research Institute of
Instrumentation Frontier

akihiro-furube@aist.go.jp

AIST TODAY Vol.9, No.6 p.19 (2009)

Transient absorption spectra of illegal drugs
(collaboration with National Research Institute
of Police Science)



In Brief

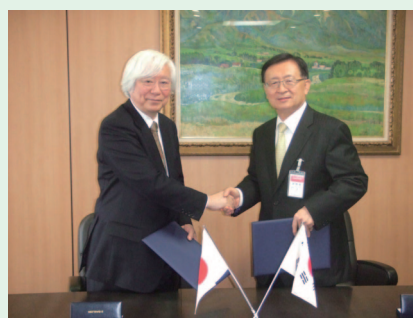
MOU concluded with Korea Research Council for Industrial Science & Technology

On February 16, 2009, AIST concluded a MOU on comprehensive research cooperation with the Korea Research Council for Industrial Science & Technology (ISTK).

In 2008, many of the national research organizations were reorganized under two councils in Korea. ISTK is one of the two scientific councils in Korea and is under the Ministry of Knowledge Economy. Presently, under ISTK, there are 13 research institutes for mechanical engineering, electronics, chemistry, geology, energy, materials, manufacturing, and for other fields in common with AIST, and it has been transformed into a research organization of a size equivalent to AIST. At ISTK, the strengthening of new functions such as planning, management, and evaluation of these research institutes has become an issue.

AIST has concluded, over the years, 15 still active collaborative research MOUs and joint research contracts with ISTK institutes: the Korea Institute of Industrial Technology, the Korea Institute of Energy Research, the Korea Institute of

Geoscience and Mineral Resources, and the Korea Research Institute of Chemical Technology. With this new MOU, not only further promotion of research cooperation is hoped for, but active cooperation is also expected in areas of research management such as of projects, research units, and researcher evaluation in which AIST has some experience.



ISTK Chairman Han (right) and then AIST President Yoshikawa (left) after signing the memorandum

Cover Photos

Above: SEM image of ultra-lightweight hollow carbon fine particles (p. 21)

Below: Photo image of a developed organic ionic plastic crystal (p. 22)

AIST
TODAY
International Edition
2009-3 No.33

AIST NATIONAL INSTITUTE OF
ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY (AIST)

Publication Office, Public Relations Department
National Institute of Advanced Industrial Science and Technology (AIST)

AIST Tsukuba Central 2, 1-1-1 Umezono, Tsukuba, Ibaraki 305-8568, Japan
TEL: +81-29-862-6217 FAX: +81-29-862-6212 Email: prpub@m.aist.go.jp URL: <http://www.aist.go.jp/>

• Reproduction in whole or in part without written permission is prohibited.
• Contribution and remarks from other organizations don't represent with AIST's views.