

Precise morphology measurement of nanostructures

Reference material for atomic force microscope (AFM) and precise morphometry

A cantilever with a sharp tip is one of the key components of the atomic force microscope (AFM), and it is the origin of artifacts in AFM images. A probe characterizer for AFM was developed to analyze the accurate probe-shape. A reference material, which includes accurate lines and spaces, was developed using multilayer-thin films. Lines and spaces ranging from 5 nm to 100 nm can be fabricated using a multi-layer film structure. The comb-shape grating was developed for correcting AFM images. Apparent probe shapes can be determined under various experimental parameters, and actual probe shape can be obtained under optimized set-points of force and feedback parameters. As a result, reliability of AFM images can be improved significantly.

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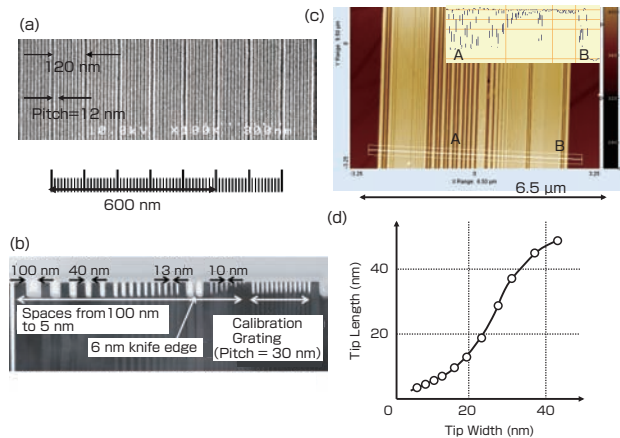
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(a) Scanning electron micrograph of periodic grating for calibrating non-linearity of scanning system

(b) Transmission electron micrograph of AFM probe-shape characterizer

(c) AFM image of comb-shape grating

(d) Probe characteristic for quantitative analysis



In Brief

President Nomakuchi talks at IASP 2010 Daedeok

The 27th IASP World Conference on Science and Technology Parks (IASP 2010 Daedeok) was held by the International Association of Science Parks (IASP) on May 24-26, 2010, in Daejeon, Korea.

AIST President Tamotsu Nomakuchi gave an invited lecture titled "AIST as an Innovation Hub of Industrial Science and Technology for a Sustainable Society", presenting activities in photovoltaics, Tsukuba Innovation Arena for Nanotechnology (TIA nano), and international industrial standardization as three examples of AIST open innovation. IASP is a nonprofit international association established in 1984 with the objective of creating a global network of science parks around the world and of promoting exchange and cooperation. There are presently 380 organizations from 72 countries belonging to the association. To this conference, 1200 people from 57 countries participated, and there were active discussions, with the main theme "global green development to overcome climate change, environmental and energy problems". Korean Prime Minister Chung Un-Chan attended the

opening ceremony, participated in the ribbon cutting with AIST President Nomakuchi, and the two had an opportunity for friendly talks. Director Kozo Uto of AIST Kyushu, and Director Koichi Sakuta of the International Affairs Department, AIST, also attended, and presented AIST's activities toward the realization of a low carbon society.



AIST President Nomakuchi giving an invited lecture at IASP 2010 Daedeok