

Self-Organized Titanium Oxide Nanotube-Layers: Formation and Application in Photocatalysis and Dye Sensitized Solar Cells _{Chair: Dr.} Sachiko Hiromoto (MANA Scientist)

Prof. Patrik Schmuki

(University of Erlangen Nuremberg, Dept. of Materials Science, LKO, Erlangen, Germany)

Electrochemical self-organization to fabricate highly ordered titanium oxide nanotube layers has, in recent years, received strong interest from science and technology. Key to obtain highly defined tubes is an optimized and controlled anodization of titanium in fluoride containing solutions. By optimizing the local electrochemical conditions within the tubes, layers consisting of highly ordered TiO2 nanotubes with a length of several 100 micrometers can be grown on Ti surfaces. The diameters that can be obtained range from 20 nm to 200 nm with typical wall thicknesses in the range of 10-20 nm. Titanium oxide is a highly functional material that has, for example, interesting semiconductive or surface catalytic properties and therefore a high potential for technological exploitation. The talk will address synthesis and applications of the TiO2 nanotube layers in photocatalysis and solar energy conversion.

Venue: Seminar Room #431, MANA Bldg. Date: <u>Sep 24th Thursday</u> Time: <u>15:30-16:15</u>

Contact: International Center for Materials Nanoarchitectonics (MANA), Nakata (ex. 8806)



NAMIK

