



## Frenken to receive MRS Innovation in Materials Characterization Award

Joost W.M. Frenken, from the Advanced Research Center for Nanolithography (ARCNL), The Netherlands, and a professor of physics at Leiden University is being honored with the Materials Research Society (MRS) Innovation in Materials Characterization Award “for the development, application, and commercialization of high-speed, temperature-controlled, *in situ* scanning probe microscopy (SPM), leading to key insights in the structure, dynamics, and chemistry of surfaces and interfaces.” He will be presented with the award at the 2017 MRS Spring Meeting in Phoenix, Ariz. The award is endowed by Gwo-Ching Wang and Toh-Ming Lu.

Frenken’s work demonstrates that it is possible to apply scanning tunneling microscopy (STM) techniques

under harsh conditions without compromising their atomic resolution. Extra attention is required to construct SPM instrumentation to avoid the complications that are introduced by these conditions, such as excessive thermal drift or damage to delicate components. This is, in principle, a straightforward engineering task that typically leads to dedicated designs for specific classes of imaging conditions. Examples will be provided in this talk of live STM observations of relevant dynamic surface phenomena. They range from model catalysts under high temperatures and high pressures used in the chemical industry, to the chemical vapor deposition of graphene on metal substrates and the atom-by-atom deposition or erosion of surfaces under the influence of atom and ion beams.

Frenken received his MSc degree in physics at the University of Amsterdam and his PhD degree in physics from the University of Utrecht. He leads the Interface Physics Group in the Physics Department (LION) of Leiden University. In 2014, Frenken started as Director of ARCNL. Frenken is also a professor in experimental physics at the University of Amsterdam and at the VU University Amsterdam. He is the recipient of several awards, including the 2012 FOM-Valorization Prize (Dutch award for valorization of fundamental research in physics).

Frenken’s research focuses on the fundamental understanding of the dynamic aspects of surfaces and interfaces and their role in relevant, natural, or industrial processes under practical conditions. Topics of interest include surface diffusion, crystal growth (e.g., graphene), surface phase transitions, catalysis, and friction. For measurements in each of these areas, Frenken’s research group has developed a variety of special-purpose scanning probe microscopes as well as dedicated instrumentation for surface x-ray diffraction. Frenken is also the (co)-initiator of two spin-off companies, dealing with advanced scanning probe and x-ray diffraction instrumentation and the large-scale production of high-quality graphene.



## Spaldin to receive Mid-Career Researcher Award for theoretical frameworks describing multiferroics

The Materials Research Society (MRS) has named Nicola Spaldin, Swiss Federal Institute of Technology, Zürich (ETH Zürich), to receive the Mid-Career Researcher Award “for creating a new

theoretical framework describing multiferroics and for service to the materials community.” Spaldin will be recognized during the Award Ceremony at the 2017 MRS Spring Meeting in Phoenix, Ariz.,

but will deliver her presentation at the 2017 MRS Fall Meeting in Boston. The Mid-Career Researcher Award, endowed by MilliporeSigma (Sigma-Aldrich Materials Science), recognizes exceptional achievements in materials research made by mid-career researchers.

Spaldin holds the Chair for Materials Theory at ETH Zürich, where her research group studies the fundamentals of strongly correlated materials. Her work combines the development of new theoretical electronic structure techniques, understanding unusual behavior in existing materials, and design and synthesis of new materials based on the insights gained from the research. The group’s particular focus is the design of