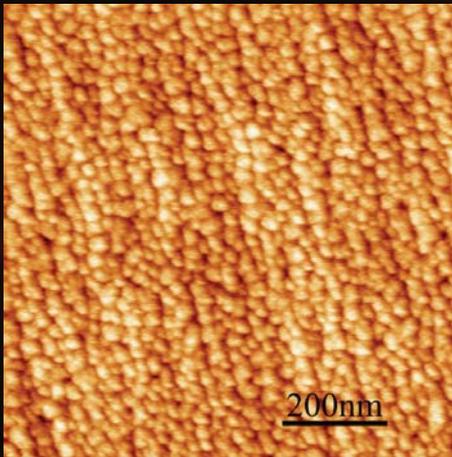


RESEARCH NEWS

The nanoworld of corrosion



Credits: Max-Planck-Institute für Metallforschung

An atomic force microscope's depiction of the Cu₃Au surface after the dissolution of the CuAu passivation layer. In the picture it is possible to recognise 10 to 20 nanometre-wide gold "islands".

The effect of corrosion has an impact on about 3% of the world's Gross Domestic Product. From a positive point of view, however, chemical attack of metal surfaces may result in surface nano-structures with very interesting technological applications such as catalysts and sensors. Therefore, a better understanding of corrosion processes is required to both prevent it and make the most of it. Scientists from Max Planck Institute in Germany and the European Synchrotron Radiation Facility (ESRF) have highlighted a self-organization process on the surface of a metal alloy, which is of crucial importance in determining the response to corrosion of this material. In fact, this study, providing a structural description with atomic-scale resolution thanks to the X-rays from the ESRF synchrotron, unveiled the chemical composition and structure of a protective surface layer which hinders further corrosion.

Reference: F. U. Renner et al. Initial corrosion observed on the atomic scale, Nature 439, 707-710 (09 Feb 2006).

Users get together for the ESRF annual meeting

The sixteenth edition of the annual Users' Meeting was held on site at the ESRF during February 2006, and attracted 240 participants from 18 countries. After a review of the past year's activities on beamlines and the machine, W.G. Stirling and the Research Directors presented plans for the medium-to-long term strategy for the facility. They identified increasingly pressing requests for nano-focusing and nanotechnology on beamlines, for time-resolved experiments, for increased support for special sample environments, beamline automation, and increased capacity for imaging and materials science experiments as well as for biology and human health programs.

Plans were presented for upgrades to the machine, and to 1/3 of the beamlines, for instrument and detector development, and an increase in computing capacity. A series of new long beamlines are projected, together with a re-construction of the experimental hall, to include additional laboratory and office space. Participants then broke out into parallel group discussions, to debate these proposals and define special needs in their particular areas.

The award of the 2006 Young Scientist prize went to Paul Tafforeau, for the application of X-ray synchrotron imaging to studies in paleontology. Tafforeau is a CNRS palaeontologist who has been working at ESRF beamlines ID17 and ID19 since a year ago. When he got his prize, he explained that "the ESRF made it possible to scan exceptional fossils with a quality never obtained before".

Have a look at the current job offers at www.esrf.fr or send your CV at recruitment@esrf.fr