

Dubendorf, June 2003

*EMPA researcher honored*

## **Thun at the center of success in surface technology**

***Switzerland has been honored for the first time at the International Thermal Spray Conference and Exhibition ITSC 2003 in Orlando (USA), the most important conference in the field of thermal surface treatment. This year's research prize has been awarded to the EMPA's Dr. Nikolaus Margadant.***

Dr. Margadant's contribution presented the effects of simultaneously varying the process parameters on the physical and technical characteristics and the micro-structural constitution of surfaces created using different coating processes. It was selected from a field of over 300 papers and posters. The micro-structural constitution of the surface materials was investigated using several new techniques, specially adapted to measure thermally generated surfaces and allow for anisotropy and directional dependence properties. In addition, various methods were used to measure the residual stress of surface layers as a function of their microstructure and in relation to their thermal, electrical and mechanical properties.

Unique about this research is both the fact that so many analytical methods were employed, and also the width of the structural components, with dimensions from nanometer to micrometer. The results uncovered by the research have in part surprised the experts in the field, and they will in any case in future simplify the choice of coating technique and material, as well as help to develop novel, targeted coatings more quickly.

The initial successes based on the methods developed in Thun have already been adapted and applied in industrial settings in cooperation with the EMPA.

## **International cooperation pays off**

The analytical techniques mentioned above have essentially been developed in the framework of a international cooperative research project (EUREKA), led by the EMPA, involving the Swiss coating company Sulzer Metco in Wohlen, the Paul Scherrer Institute in Villigen and partners in the Czech Republic (Skoda in Pilsen and the Plasma Physics Institute in Prague). The project duration is three years and in Switzerland is financially supported by the Commission for Technology und Innovation (KTI).

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Professor Chris Berndt (left), President of the ASM  
Thermal Spray Society, presents the prize to Dr.  
Nikolaus Margadant.