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EDITORIAL

2006 was truly a 'nano' year in Switzerland. With meetings such as the ICN&T in Basel, the Nanoanalysis workshop in Zurich, NanoEuro in St. Gallen, and the NFO conference in Lausanne, scientists in Switzerland had a host of exciting meetings right at their doorstep. The theme of nanoscale chemical analysis is gaining importance and momentum: while using nanotechnology methods it is possible to fabricate a multitude of particles, surface structures, and while nanoscience research is increasingly concerned with the detailed characterization of subcellular compartments, of 'molecular machines' and small biological objects, or of components of molecular electronics, there is currently a lack of methods for chemical diagnostics and characterization, in particular of the molecular composition, of such nano objects. The challenge arises because traditional methods with nanoscale lateral resolution (*e.g.* standard AFM, STM and electron microscopy) typically yield very little or no chemical information at all, traditional methods of chemical analysis (*e.g.* NMR, mass spectrometry, even spectrochemical analyses carried out with microscopes) in many cases a far cry from achieving nanoscale lateral resolution.

This issue aims at presenting the state-of-the-art in nanoscale chemical analysis in Switzerland and beyond. Contributions from many university institutes and research laboratories will discuss how methodologies as diverse as electron microscopy, nano-optical methods, focused ion beams, photoelectron diffraction, specialized AFM and STM methods, and nanoscale laser ablation mass spectrometry can provide answers to scientific questions ranging from electronic transport phenomena in nanostructures to inorganic nanocrystals, to single biological molecules and their interactions. A theme that is of equally great actuality and significance – nanotoxicity – was not included in the present issue due to space limitations. I expect many of the approaches that are discussed in the articles within to be in an excellent position to make contributions in the area of nanotoxicity as well.

I would like to thank all authors for their splendid contributions, the Editor-in-chief for a pleasant collaboration in putting this issue together, and the Analytical Division of the Swiss Chemical Society for sponsoring the color figures.

Zurich, July 2006

Renato Zenobi, ETH Zürich

The Editorial Board of CHIMIA warmly thanks the coordinating guest editor Prof Renato Zenobi for his great efforts in putting together this extremely interesting and informative issue on Nanoanalysis.