globe and humankind, ranging in scale from the environmental mineral-organism-humus-water-air interfaces.

3. Discussion on carbon turnover furthered understanding of the role of mineral colloids in carbon transformation, dynamics, and sequestration and their impact on climate change in the environment.
4. Microbes participate in important natural biogeochemical processes relating to metal-mineral transformations, element cycling, bioweathering, biocorrosion, bioremediation, revegetation, phytoremediation, and containment of pollution in the terrestrial critical zone
5. The importance of nanoscience as a new frontier in soil science was emphasized.
6. Some new advanced methods and approaches (e.g. synchrotron radiation, SIP-DNA) have improved our understanding of the environmental interfacial reaction processes and mechanisms in the Earth's critical zone.

Two challenging areas were also identified: 1) How, and to what extent, are the interfacial reaction processes affected by environmental nanoparticles and by the soil microbes, especial at the molecular level? and 2) What are the physical, chemical, and biological interfacial interactions at the molecular level that define the fate of ions, chemicals, and microbes as they are transported through soil systems?

A book entitled *Molecular Environmental Soil Science at the Interfaces in the Earth's Critical Zone* was published jointly by Springer Verlag and Zhejiang University Press. The book, edited by Jianming Xu and Pan Ming Huang, contained 108 accepted, extended abstracts. Another book composed of accepted papers by plenary and invited lecturers will be prepared and published by Springer Verlag. A special issue composed of accepted papers by other participants will also be prepared and published by the *Journal of Soils and Sediments*.

At the closing ceremony, IUPAC Representative Nicola Senesi, introduced the last program and discussed the work of IUPAC. He stated that the symposium was a great success.

More information and full details of the symposium program are available on the symposium website.

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Yuping Wu's laboratory members from Fudan University, who helped staff the conference, with some symposium participants.

Novel Materials

by Yuping Wu

The **International Symposium on Novel Materials and Synthesis** (NMS) was initiated in 2005 in Shanghai. Since then, it has been jointly held with International Symposium on Fine Chemistry and Functional Polymers, which was first held in 1985 in China. The IUPAC-sponsored **5th NMS** took place 18–22 October, 2009 at Fudan University in Shanghai, China.

The joint symposium, which attracted 423 participants including 310 from overseas, focused on innovative catalytic and other synthetic methods, innovative polymer materials, energy systems, nanomaterials, ceramic materials, and other novel materials and synthesis related to the environment, medicine, and analysis. Lectures were given by a number of prominent scientists, including Robert Huber (Nobel Laureate of Chemistry in 1988), Klaus Muellen (President of the German Chemical Society), Shixue Dou (member of the Australia Academy of Engineering), Hans-Joachim Knölker (Germany), Hasuck Kim (South Korea), Kimihisa Yamamoto (Japan), Masahiro Yamashita (Japan) and Limin Wu (China), Heinz Berke (Switzerland), and Makoto Shimizu (Japan). Speakers from industry also discussed the latest developments in novel materials.

For the first time, IUPAC Poster Prizes were awarded at the symposium. The winning posters were from Poland, South Korea, and Japan. In addition, the 2009 Distinguished Award for Novel Materials and their Synthesis was granted to Makoto Shimizu (Japan) and Klaus Kurz (Germany).

The next Symposium on Novel Materials and Synthesis and Fine Chemistry and Functional Polymers will be held in Wuhan, China, 11–14 October 2010.

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