



The Clay Minerals Society

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THE PRESIDENT'S CORNER



David Laird

"Shales and Imposters" was the theme of the 49th annual meeting of The Clay Minerals Society, held at the Colorado School of Mines in Golden, Colorado, on July 7–11, 2012. The conference, organized by Manika Prasad and her colleagues, featured a coordinated pre-conference workshop focusing on organic-rich rocks, a Sunday field trip to visit outcrops of such rocks, and sessions on the themes "Pore-Systems in Organic Shales" and "Clay Diagenesis and Organic Maturity." The restaurants of lovely downtown Golden and the

excellent conference facilities on the nearby Colorado School of Mines campus provided fertile ground for interdisciplinary discussions relating clay mineralogy, diagenesis, rock structure, and surface chemistry to the formation and potential availability of hydrocarbons in organic shales. Clearly, clay science is foundational to the rapidly growing industry of extracting energy resources from organic shales. Other highlights of the meeting included a symposium organized by Lynda Williams on the topic "Clays and Human Health," during which there was much discussion on the mode of action of antibacterial clays and the impact of clays mixed with animal feed on the fate and toxicity of aflatoxins. An intriguing symposium entitled "Multi-Scale Modeling of Clays and Layered Minerals," organized by Jeff Greathouse and Chris Greenwell, provided a state-of-the-art *ab initio* view of clay surface chemistry, hydration, and swelling and interactions of clays with PAHs, supercritical CO₂, and CO₂ nanodroplets in deep saline aquifers. The latter work helps establish a theoretical foundation for the geological sequestration of CO₂. David Bish described the miniature transmission X-Ray diffractometer that is aboard Curiosity, NASA's exciting new Mars rover. If all works well, the first diffraction patterns of clay minerals in Martian soils will be arriving on Earth later this year.



CMS President David Laird (left) and 2012 Jackson awardee Jeffrey Post

Dr. Jeffrey Post, a research geologist in the Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution, USA, was the 2012 recipient of the Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award. Dr. Post gave us a fascinating tour of the dark world of manganese oxides in a lecture titled "Unraveling Manganese Oxides—Tales from the Dark Side of Mineralogy." Often fine-grained and black in color, Mn oxides have drawn little attention, yet the more than 30 redox-active Mn oxide phases play a crucial and biologically mediated role in soils and sediments. Dr. Post and his

many collaborators have brought together X-ray and neutron diffraction, computer modeling, spectroscopy, and time-resolved synchrotron X-ray diffraction techniques to unravel the structure and reactivity of this family of fascinating minerals.

Dr. Akihiko Yamagishi, a professor in the Department of Chemistry, Toho University, Chiba, Japan, was the recipient of the Marilyn and Sturges W. Bailey Distinguished Member Award. The Bailey Award is the highest honor of The Clay Minerals Society. It is awarded for scientific eminence in clay mineralogy as evidenced by the publication of outstanding original scientific research and by the impact of this research on the clay sciences. In his lecture titled "Stereochemistry and Molecular Recognition on a Clay Surface," Dr. Yamagishi began with an appeal to his colleagues for help in finding a way to deal with Cs137 and other radionuclides released into the soils of Japan in the wake of



CMS President David Laird (left) and 2012 Bailey awardee Akihiko Yamagishi



2013 President Peter Komadel (left) and 2012 President David Laird

the Fukushima nuclear disaster. Dr. Yamagishi then reviewed his well-known work on the synthesis and use of chiral clays and on Langmuir-Blodgett films of clays. Chiral clays can simply be prepared by exchanging chiral transition metal ion complexes of the right size and charge. These chiral clays specifically interact with chiral molecules, thus leading to applications such as chiral separation and chiral catalysis.

It has been an honor for me to serve as CMS president this past year. My job was made easy by the dedicated staff at the CMS office in Chantilly, Virginia. I offer my sincere thanks to Mary Gray, Alex Speer, and Gordon Nord for all their help. I also want to thank members of the CMS Executive Committee for their dedication to clay science and to our Society. Finally, it is my honor to introduce as the new CMS president Dr. Peter Komadel of the Slovak Academy of Sciences, Institute of Inorganic Chemistry, in Bratislava, Slovakia. Dr. Komadel will be writing this column and guiding our Society forward through our 50th anniversary celebration at the University of Illinois in Urbana-Champaign, October 6–10, 2013 (see ad on page 376).

David Laird

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STUDENT AWARDS AT 49th CMS ANNUAL MEETING



Student travel awardees (left to right): Sandra Londono, Asma Sadia, Keith Morrison, Luke Morgan, Michael Bishop, Baptiste Dazas, Kai Su, Laura Zaunbrecher, and Jing Zhang

The following students were recognized for their outstanding presentations at the CMS annual meeting.

First place: Keith Morrison, Arizona State University, USA – "Interaction between antibacterial clays and bacteria: Determining the reactivity and geochemistry of transition elements"

Second place: Tae-Hee Koo, Yonsei University, Korea – "Understanding the illitization step by observing structural and chemical changes in bio-reduced nontronite in various redox conditions"

Third place: Hongi Yuan, Indiana University, USA – "Improved automated fitting of X-ray diffraction patterns from interstratified phyllosilicates"

CORRECTION

Graduate student Conni De Masi was highlighted in the June 2012 issue. Her master of science degree will be in geology, not biology.