EMU AWARD TO OGANOV

Artem R. Oganov

The European Mineralogical Union Research Excellence Medal is awarded annually to a young scientist who has made significant contributions to research and who is active in strengthening European scientific links. The EMU medallist committee has awarded the 2007 medal to **Artem R. Oganov**. He was born in Moscow, Russia, in 1975. After obtaining an MSc in crystallography at Moscow State University, he obtained a British Government PhD scholarship and continued his studies at the University College London, UK. Since 2003 he has been employed as a senior research scientist and lecturer at the Laboratory of Crystallography, Department of Materials, ETH Zürich (Switzerland), and since 2006 he has held an additional position as adjunct professor at Moscow State University. The principal aim of his research is related to mineralogical aspects of crystallography. Most of his publications deal with studies of mineral transformations under non-ambient conditions. The remarkable results he has obtained represent significant contributions towards the understanding of the composition and structure of the Earth's deep interior.

Artem R. Oganov is a leader in the field of prediction of crystal structures based on *ab initio* calculations. One important result of his research is that, under very high pressure, $CaCO_3$ unexpectedly forms pyroxene-like chains consisting of tetrahedrally coordinated carbon atoms. He predicted a number of new crystal structures for $MgSiO_3$, intermediate between perovskite and post-perovskite, and demonstrated that these compounds may become stable in the Earth's mantle. The behaviour of these compounds, particularly with respect to their plastic deformation, has significant implications for the interpretation of mantle anisotropy in terms of plastic flow. He was involved in the discovery of the $MgSiO_3$ post-perovskite phase and continues to study its structure and physical and rheological properties. This phase is believed to constitute the principal mineral phase present in the core–mantle boundary (D″) layer. The phase's structure is characterized by layers formed by octahedrally coordinated Si atoms with intercalated Mg cations. The properties predicted by Artem Oganov's *ab initio* calculations explain some of the geophysical anomalies observed for the D″ layer. He was the first researcher using *ab initio* molecular dynamics to determine the elastic properties of materials, thereby providing direct insights into the elastic and seismic properties of perovskite at very high pressures and temperatures.

In addition, he is an excellent lecturer and a very enthusiastic and generous collaborator. He has been invited by various universities worldwide to present talks, has organized and chaired numerous symposia, is currently an associate editor of *American Mineralogist* and is a founding member and the current vice-chairman of the Mineralogical Crystallography Special Interest Group of the European Crystallographic Association. For the relevance and international dimension of his work, Artem R. Oganov is a particularly worthy recipient of the EMU Research Excellence Medal for 2007.

Peter Ulmer, EMU President
David Vaughan, Past President
Herta Effenberger, Secretary

IAN CAMPBELL MEDAL TO SOCOLOW

Dr. Arthur A. Socolow

Dr. Arthur A. Socolow has been named by the American Geological Institute as the recipient of the 2007 Ian Campbell Medal. Socolow was presented this prestigious award at the Geological Society of America Presidential Address Ceremony in Denver, Colorado on October 27, 2007. Dr. Socolow received his BS in geology from Rutgers University and his MS and PhD from Columbia University. While in graduate school, he also worked for the U.S. Geological Survey. After receiving his PhD, he began his career as a professor of geology at Southern Methodist University, Boston University, and the University of Massachusetts.

In 1957, Socolow joined the Pennsylvania Geological Survey where he worked as Director and State Geologist until 1986. After stepping down as Director, he began working as a consulting geologist, focusing on projects in environmental geology, engineering geology, mineral resources evaluation, and groundwater development.

Socolow has authored over 100 papers and publications. He has served on advisory committees for the U.S. Department of the Interior, the U.S. Department of Energy, the National Research Council, and the Interstate Oil Compact Commission. In addition, Socolow has been president of the Association of American State Geologists, the Geologic Section of the American Association for the Advancement of Science, and the Association of Stratigraphic Nomenclature.

Socolow is the 26th recipient of this award, which is given annually in memory of Ian Campbell, a man of remarkable accomplishment and influence. Dr. Socolow's long history of service to the science and profession makes him extremely deserving of this honor. Previous recipients of this award are listed at www.agiweb.org/direct/awards.html.

CATLOS – ONE OF AMERICA'S YOUNG INNOVATORS

Elizabeth Catlos

Elizabeth Catlos, a member of MSA, was included in a very select group by the *Smithsonian* magazine. She is featured in the fall 2007 issue of *Smithsonian* as one of 37 people chosen as America's "Young Innovators in the Arts and Sciences," all of whom are under the age of 36. Elizabeth is one of three in the group to study aspects of Earth or environmental science. These are people innovating in their chosen field but also crossing disciplines to make a difference in the world, according to the editors. Elizabeth is an associate professor at Oklahoma State University. She is currently on leave doing research at the University of Texas at Austin. She conducts field work in the Himalayas, the Menderes Massif (northern Turkey), and South India. She models heat, mass, and fluid flow along tectonic structures and applies geochemical techniques to the study of lithosphere dynamics.

http://images.smithsonianmag.com/content/innovators/

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