



Contact:

Cynthia Jenks, Materials Chemistry & Biomolecular Materials (515) 294-8486
Pat Thiel, Materials Chemistry & Biomolecular Materials (515) 294-8985
Kerry Gibson, Public Affairs (515) 294-1405

For Release: April 20, 2005

WORLD QUASICRYSTAL FOCUS ON AMES
Ames Laboratory and Iowa State University to host Ninth International Conference

Ames, IA – Twenty years ago, quasicrystals were a new and controversial discovery that shook up the field of crystallography. Despite that relatively brief history, quasicrystal research has grown rapidly, and leading researchers from around the world will gather in Ames, May 22-26, to discuss and celebrate these fascinating materials at the Ninth International Conference on Quasicrystals.

Selection of Ames as the host city among the likes of Beijing, Avignon, Tokyo, Stuttgart, Bangalore, and Zurich is testimony to the strength of materials research being conducted by the U.S. Department of Energy's Ames Laboratory at Iowa State University. This year is also only the second time the U.S. has hosted the event since the first conference was held in 1986.

Quasicrystals, the focal point of the conference, are typically aluminum-rich metallic alloys that are somehow able to form into crystals – usually with a five-fold symmetry – in which the atoms are ordered, but without the periodicity common in crystalline materials. Quasicrystalline materials are hard, slippery, poor conductors of heat, and resistant to attack by other chemicals, making them particularly useful for applications requiring resistance to wear, low adhesion or a thermal barrier.

“The conference will look at all aspects of quasicrystals,” said conference co-chair and Ames Laboratory scientist Cynthia Jenks. “We’ve accepted 215 abstracts in more than a dozen areas of study. And for the first time, we’ve also invited scientists working in the broader area of complex intermetallic alloys.”

Another first for the conference will be the awarding of the inaugural Jean-Marie Dubois Award, named for one of the key researchers in the field. Dubois, who is a scheduled presenter at the conference, was recently named as the 2007 winner of The Minerals, Metals & Materials Society's (TMS's) prestigious Robert Franklin Mehl Award.

“We created the Dubois Award as a way to honor Jean-Marie for his many contributions to the field and at the same time recognize others who are making a sustained effort in quasicrystal research,” said Pat Thiel, conference co-chair, Ames Lab senior chemist and ISU Distinguished Professor of Chemistry. “His career has been an amazing blend of science and engineering, and he has the rare ability to speak across disciplines, bringing new insights and deeper understanding to the many researchers he has worked with over the years.”

Dubois' ties to Iowa State go beyond the award bearing his name. He has worked closely with Thiel's research group and was awarded an Honorary Doctorate of Science degree in 2000. The Dubois award, which includes a plaque and a monetary prize, is being administered by the ISU Foundation.

Joining Dubois on the conference program are several other key figures in quasicrystal research. Dan Shechtman, Denis Gratias and Alan Goldman will open the conference on May 22 with a special session on the discovery of quasicrystals, including little-known history. Shechtman, of the Technion in Israel, discovered the materials and worked with Gratias and others to announce the discovery in 1984. Goldman, division director Science and Technology, and senior physicist at Ames Lab, will talk about his theoretical debate with Linus Pauling over the existence of quasicrystals, and Dubois will talk about the future of the materials.

Another highlight of the conference will be a May 25 panel discussion on Stabilization of Quasicrystals. Led by Walter Steurer, Eiji Abe, Marc de Boissieu, Michael Feuerbacher, and Chris Henley, the session will specifically address thermodynamics, cluster stability, and the role of defects and disorder, including vacancies and phasons.

“The goal of this session is to take a broad look at the field, identify common ground and terminology, and describe any consensus that might emerge within the group,” Jenks said. “We’ll also work to define the open problems, and then identify specific experiments or calculations that are needed to help solve those problems.”

Jenks added that the results of the panel discussion will be summarized as part of the conference proceedings, published in *Philosophical Magazine*.

Besides presentations, poster sessions, and discussions, all of which will take place at the Scheman Building on the ISU campus, conference participants will have the opportunity to sample Iowa and American culture. The group is scheduled to visit Living History Farms in Des Moines and also attend an Iowa Cubs minor league baseball game.

Complete details on the Ninth International Conference on Quasicrystals can be found on the conference Web site: <http://www.icq9.ameslab.gov>.

Ames Laboratory is operated for the Department of Energy by Iowa State University. The Lab conducts research into various areas of national concern, including energy resources, high-speed computer design, environmental cleanup and restoration, and the synthesis and study of new materials.

###

Note to editors: Jean-Marie Dubois will be available for interviews during the conference. If you are interested in speaking with him on his research or the future of quasicrystals, please contact Kerry Gibson, kgibson@ameslab.gov or (515) 294-1405 to schedule an interview.