

New Awards for Spring 2009

Dr. David King, a professor of geology at Auburn University, has been awarded \$190K from National Aeronautics and Space Administration (NASA) to further his research on the Wetumpka impact crater site. King has been studying the site, which is located in Elmore County, Alabama for just over 10 years. He has published proof that the site was formed millions of years ago when an asteroid hit the earth, based on his findings of shocked quartz, which only forms in the heat and pressure of an asteroid impact. The first drilling of the site was funded solely by a gift to the University by Vulcan Materials and now there is substantial funding from NASA to continue the drilling. The drilling produces core samples, which are then studied in an attempt to learn more about the crater. King hopes to find both undergraduate and graduate students interested in the study to conduct research along with him.

The Wetumpka impact crater research gained international interest when King hosted an international field forum at the site in March 2007. In addition, with his help, the City of Wetumpka and Elmore County have founded a "Crater Commission," and they host public tours of the site once a year each February.

Dr. Anne E. V. Gorden, a faculty member of the Chemistry and Bio Chemistry department of the College of Sciences and Mathematics, is a co-investigator on a project which was recently awarded over \$475,000.00 by the Department of Energy. Gorden will collaborate with a team from around the country to investigate the design and synthesis of novel organic ligands for the selective extraction of heavy metals or other compounds of concern to environmental or health protection. Gorden, who has a strong background in organic synthesis, actinide science and coordination chemistry, will work with up to three graduate students on the project for one year.

The National Science Foundation recently granted awards to **Dr. Evert Duin and Dr. Ken Halanych**.

Duin, a faculty member in the Department of Chemistry and Bio Chemistry was awarded over \$424,000.00 to further his research which focuses on the two pathways in nature that are for the synthesis of the isoprene precursors isopentenyl pyrophosphate (IPP) and dimethylallyl pyrophosphate (DMAPP). These two compounds are very important as the building blocks for the essential molecules called isoprenoids, which include vitamins, cholesterol, steroid hormones, carotenoids and quinines. Mammals, including humans, use the mevalonate pathway to synthesize the isoprene precursors, while eubacteria and some other microorganisms use DOXP pathway as the sole pathway for isoprene synthesis. Several of the microorganisms that utilize the DOXP pathway are pathogens, causing, for example, malaria, multi-drug resistant tuberculosis, anthrax, plague, methicillin-resistant Staphylococcus aureus (MRSA) infections, among others. This makes the DOXP pathway an attractive target for the development of new anti-infective drugs. Dr. Duin's lab is one of the few labs in the country equipped with the use of Electron Paramagnetic Resonance (EPR) spectroscopy.

Halanych, a professor in the Department of Biological Sciences also received over \$400,000 to continue researching hemichordates, which include acorn worms and their relatives. Hemichordates, have long been pivotal to hypotheses of deep animal evolution. Furthermore,

evolutionary relationships within hemichordates are a complete mystery, yet understanding of relationships within the group is needed to assess the ancestral conditions of animals that gave rise to Chordata, the phylum that includes humans. With funding provided by the National Science Foundation and in collaboration with colleagues at the University of Washington, the Halanych lab will use advanced DNA sequencing and computational approaches to evaluate hypotheses of chordate origins. This work includes training of graduate students and outreach components.