

**2006-2007 PRESIDENT'S AWARD  
FOR RESEARCH AND CREATIVE ACTIVITY**



The President's Award for Research and Creative Activity was established in 1989 and is given each year to recognize extraordinary research and creative activity over the past five years by a member of the Sacramento State faculty. Nominees for the award must be in their first ten years of service at Sacramento State. This year's recipient is Dr. Ali Porbaha, Assistant Professor in the Department of Civil Engineering. Professor Porbaha is the eighteenth recipient of this award.

Dr. Porbaha received his bachelor's degree in civil engineering from the University of Shiraz, Iran. His graduate work was done in geotechnical engineering at the University of Maryland, College Park, where he received both his M.S. and his Ph.D. His M.S. research was on dynamic testing of bridge piles using an ultrasonic stress wave propagation technique; research for his doctoral degree, which was supported by the National Science Foundation (NSF), was on geotextile reinforced cohesive slopes and embankments.

He assumed his current position in August of 2003. Prior to joining the faculty at Sacramento State he was a Research Engineer in the Division of Research and Innovation at the California Department of Transportation (Caltrans). He worked as a Project Engineer with TOA Corporation in Yokohama, Japan and held a NSF post-doctoral fellowship with Science & Technology Agency (STA) in Japan. He is a registered Professional Engineer (PE) in both California and Virginia.

He co-edited *Ground Modification and Seismic Migration*, the Proceedings of GeoShanghai 2006 published by the American Society of Civil Engineers, leading a team of faculty members in three countries (US, China, and Japan) in editing the proceedings. He also co-edited a two volume work *Challenges for Implementation of Deep Mixing Technology in the U.S.*, the Proceedings of the International Workshop on Deep Mixing Technology for Infrastructure Development – Current Practice and Research Needs, published jointly by the California Department of Transportation and the Federal Highway Administration.

Professor Porbaha is the author and co-author of more than two dozen peer-reviewed articles in major professional publications. In addition, he is the author and co-author of

more than thirty peer reviewed conference publications. He has made numerous technical presentations in the United States and abroad.

One of Dr. Porbaha's graduate students was a first place winner at the annual CSU Student Research Competition for her paper on the analysis of various alternatives to mitigate erosion of the Sacramento River levee. Dr. Porbaha has recently been awarded a NSF grant to develop a facility for a Seismic Simulation Laboratory to simulate earthquake engineering research.

## **INNOVATIVE TECHNOLOGIES TO ACCELERATE GEOCONSTRUCTION**

Ali Porbaha

Assistant Professor, Civil Engineering

In recent years, the American public has been exposed to the effects of an aging and deteriorating infrastructure system as well as a significant increase in traffic. These effects are particularly problematic for the development of project sites with marginal soils in regions like California, where ground conditions are coupled with the potential for earthquake hazard. To ensure timely project delivery in the face of such conditions, project owners and industry have sought non-conventional technologies that provide innovative solutions to expedite the construction process while ensuring a high level of safety and reliability.

Dr. Ali Porbaha will present an overview of several innovative geoconstruction technologies to accelerate construction of the infrastructure system. These technologies address a wide range of applications impacting the public, including mitigation of earthquake effects such as liquefaction and lateral spreading, and the accelerated construction of deep foundations, excavations, embankments, dams, and levees.

In addition, Dr. Porbaha will address the barriers the industry is facing as it strives to implement accelerated geoconstruction technologies that have already developed overseas.