

## **ONR's Research Program on Acoustic Transduction Materials and Devices**

Ming-Jen Pan, Wallace A. Smith and Carl C.M. Wu  
Office of Naval Research  
Materials Division, ONR 332  
875 North Randolph Street  
Arlington, Virginia 22203-1995

Research on innovative materials and device structures is sought that enhances the performance of the electro-mechanical transducers used by the Department of Navy to generate, detect and suppress undersea sound waves. The present Office of Naval Research program has two thrusts. The first aims to devise and validate first-principles quantum-mechanical methods to evaluate the properties of materials with structural phase transitions; this will enable the exploration of the properties of new materials in advance of their synthesis. The second focuses on the new high-coupling, high-strain relaxor piezoelectric single crystals: efforts underway aim to produce and characterize these piezocrystals and to design/fabricate innovative transducers from them for Navy SONAR systems.