



HAWAII CENTER FOR ADVANCED
COMMUNICATIONS



Presents:

***UXO Detection and Discrimination in Underwater and
Magnetically Susceptible Environments***

by: *Dr. Fridon Shubitidze*

Thayer School of Engineering, Dartmouth College, Hanover, NH

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10:00 a.m. – 11:00 a.m.

University of Hawaii at Manoa, Holmes Hall Room 389

Abstract:

The cleanup of terrestrial and underwater environments contaminated with buried unexploded ordnance (UXO) has been identified as a high priority military environmental problem for years. Broadband electromagnetic induction (EMI) sensors (with operating frequencies between 20 Hz and ~100 kHz) have been advanced for the detection and discrimination of UXO. However, distinguishing UXO from clutter or fragments of ordnance that did explode still remains as a major limitation of current EMI technology. The problem is complicated by the fact that the objects of interest are often embedded in a magnetically susceptible and conductive environment that contributes a certain amount of signal to the EMI response. The presentation will give a general overview of the low frequency EMI sensing technologies for underwater and magnetic environments, and will describe the interactions between objects and its surrounding medium, will illustrate how conducting and magnetic environments impact on discriminating between UXO and non-UXO items.

Bio:

Dr. Fridon Shubitidze is an assistant professor and UXO group's leader at the Thayer School of Engineering, Dartmouth College. He received M.S. and Ph.D degrees in Radio physics from the Tbilisi State University, Republic of Georgia, in 1994 and 1997 respectively. From 1998 to 1999, he was a Postdoctoral Fellow with the National Technical University of Athens, Athens, Greece, performing research in connection with computer simulation of electrostatic discharge, electrodynamics aspects of EMC, numerical modeling of conformal antennas. From June to August in 2005, he was a visiting research scientist at the department of Earth and Ocean Sciences, University of British Columbia, Canada. His scientific interests are: forward and inverse EM problems, and fast and accurate optimization algorithms. Dr. Shubitidze is the author/co-author of more than 100 scientific technical peer reviewed papers and conference proceedings related to diverse EM problems, from statics up to optical frequencies. He is an IEEE senior member.

Hosted by Dr. Hyoung Sun Youn