



## RELIABILITY ANALYSIS OF THE SASW METHOD

by

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### Abstract

The need for accurate in situ soil properties (e.g., shear modulus or shear wave velocity profiles) to evaluate the dynamic response of soil or structures supported on soil during earthquake loading, machine loading, or other types of dynamic loading has long been recognized. Geophysical techniques such as crosshole and downhole are usually employed to determine low-amplitude in situ shear wave velocities.

The spectral-analysis-of-surface-waves (SASW) method is a new testing technique for determining in situ shear wave velocity profiles. The SASW method is based upon the generation and detection of Raleigh waves at the surface of a soil system and hence has an advantage over crosshole or downhole techniques in that it does not require boreholes. Measurements are made at strain levels below 0.001 percent, where elastic properties of soil are considered independent of strain amplitude.

The purpose of this seminar is to describe ongoing research being conducted at the Pennsylvania State University on the spectral-analysis-of-surface-waves (SASW) method. Specifically, the research is investigating the reliability of the shear wave velocity profile determined from typical SASW testing and data analysis procedures.

### About the Speaker

Dr. Dennis R. Hiltunen is an associate professor of civil and environmental engineering and a faculty associate of the Pennsylvania Transportation Institute, both a part of the Pennsylvania State University system. His research interests and experiences include the nondestructive evaluation of soil deposits and pavement systems, instrumentation and data acquisition for materials characterization, pavement design and modeling, foundation engineering, and soil dynamics. At Penn State, Dr. Hiltunen has taught undergraduate courses in both geotechnical engineering and civil engineering materials. At the graduate level, he has taught courses in soil and foundation dynamics, and in instrumentation and data acquisition for materials characterization. He is currently developing a course in advanced foundation engineering. Currently, Dr. Hiltunen is a visiting professor at the American University of Armenia (AUA) in Yerevan, Armenia. At AUA, he is teaching courses in soil mechanics, foundation engineering, and soil dynamics in the Department of Earthquake Engineering.

**Date:** August 3, 1995  
**Time:** 5:15-6:45p.m.  
**Place:** Auditorium, 5th floor, AUA, 40 Marshall Baghramian Avenue

***The seminar is open to the public free of charge.***