The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar
On

Four Basic Modes of Rayleigh Waves in Multilayered Medium and Fast Computation Of Multi-modes Dispersion Curves

by

Prof. Youhua Fan
Shenzhen Graduate School of
Harbin Institute of Technology

Abstract

Multi-modes dispersion curves are usually collected in Rayleigh wave explorations. How to describe their characters theoretically is very meaningful. Based on the characters of transfer matrix of Rayleigh wave dispersion equation in high frequencies, we present an approximate decomposition formula for the transfer matrix, from which an approximate decomposition formula of Rayleigh wave dispersion equation in high frequencies is deduced. Then, four basic modes(R-mode, S-mode, R-period-mode, S-period-mode) are defined based on the formulas. From the periodical characters of dispersion equation, the approximate formula of the average interval of periodical modes dispersion curves is presented, so is the formula to estimate the root-number of dispersion equation (i.e. the number of multi-modes) in any frequency and velocity intervals. Based on these results, we present a new method to search the roots of dispersion equation.

Date : **24 October, 2008 (Friday)**

Time : **3:00 – 4:00 p.m.**

Venue : **Departmenal Conference Room HJ610**
The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***