

Guest lecture/Seminar - Professor Terje Haukaas, Univ. of British Columbia, Vancouver

Time: Wednesday, August 18. 2004, 11.15-12:00a.m.

Place: Room T3/T4, Marinteknisk senter/CeSOS – Tyholt

Title: Application of finite Element Reliability and Sensitivity Methods to Ships and Ocean Structures

Abstract: Advanced numerical methods are used to predict the behavior of ships and ocean structures for the purpose of design and operation. However, such predictions can only be made in a probabilistic sense. Unavoidable uncertainties are present in the material, load and geometry parameters, as well as in the modeling and analysis procedures themselves. In this presentation the merger between advanced reliability methods and the finite element method to account for the present uncertainties is discussed.

Developments and outstanding issues are treated within the following categories: (1) response sensitivity analysis and ranking of the model parameters according to relative importance, (2) computation of the probability of response events, including time-variant reliability problems, (3) accounting for model and analysis errors, (4) reliability-based optimal design, and (5) object-oriented software development. An important motivation for this seminar is to receive feedback regarding which problems/methods are relevant to the work at CeSOS.