SEMINAR

APPLIED MATHEMATICS AND MECHANICS

6 June 2018

A DCAMM seminar No. 727 will be presented by

Professor Emeritus Kjell Ahlin
Blekinge Institute of Technology
Blekinge, Sweden

The title of the lecture is

Simulation of nonlinear systems with random loads

Abstract:

The seminar deals with the problem of how to calculate forced response to a mechanical system with nonlinearities. For a linear system there are many ways to calculate the response. The approach here is to approximate the transfer function force to response with a digital filter. The filter is designed from poles and residues for the transfer function and modal superposition is used.

Nonlinearities may then be added to the linear system. The type of nonlinearities treated are localized, zero memory, nonlinearities. Localized means a nonlinearity is connected from one DOF in the linear system to ground our between two DOFs. The nonlinear force in the nonlinear element should be written as a function of displacement and/or belocity for the involved DOF(s). One or many nonlinear elements may be added.
Several functions in a nonlinear MATLAB toolbox are presented together with examples of use. Some methods for identification and model parameter estimations for nonlinear systems are also shown.

DATE:	**Wednesday, 20 June 2018**
TIME:	**14:00 – 15:00 incl. questions**
PLACE:	**Meeting Room: Eiffel (Ø30-603-2)** **located in the TEK building (building 42)** SDU, University of Southern Denmark

Danish pastry, coffee and tea will be served 15 minutes before the seminar starts.

All interested persons are invited.

Niels Leergaard Pedersen

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