



SEMINAR

APPLIED MATHEMATICS AND MECHANICS

FS947

8 January 2019

A DCAMM seminar No. 735 will be presented by

**Professor Petri Kuosmanen,
Head of Engineering Design,
Department of Mechanical Engineering,
Alto University, Helsinki, Finland**

The title of the lecture is

Predictive Manufacturing for Operating Conditions

Abstract:

With the new technology large flexible rotors are machined to achieve an optimal geometry for their actual working conditions. Rotating machinery equipped with large rotors is widely used in different industrial applications, e.g., electric motors and generators, wind turbines, turbines, marine propulsion systems, paper machines, and steel rolling mills. Although machining accuracy has improved significantly over the years and micrometer level accuracy is achieved in machine shop conditions, the dynamics and thermal load related challenges regarding the rotor behavior in actual working conditions cannot be met by tightened manufacturing tolerances. The new technology relies on two procedures: a model updating algorithm and a new compensative manufacturing process. These two procedures form together a simulation assisted compensative 3D machining process that generates an optimized rotor geometry that will enhance the rotor operational behavior in actual industrial applications. In this new methodology, the rotors have to be machined to achieve the optimal geometry for its actual working conditions, which include rotating frequency, bearing assembly, foundation stiffness, temperature, and external loads.

DATE:	Monday, 14 January 2019
TIME:	13:30 – 14:15 + questions
PLACE:	Room 03.070 (NAVITAS building), Aarhus University, Inge Lehmanns Gade 10, 8000 Aarhus C

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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