MAKUNET (NETVÆRK FOR MASKINAKUSTIK)

Seminar

'Dynamic Vibration Absorbers: Revisiting Classical Results and Introducing New Tuning Strategies'

Date: Tuesday 16 November 2021
Time: 10:30 – 13:30
Place: Aalborg University, Department of Materials and Production,
Pontoppidanstræde 103, room 4.106

PROGRAM

10:30-11:00 **Coffee/tea**
11:00-11:10 **Welcome *(Professor Sergey Sorokin, DMP AAU)***
11:10-12:00 **Dynamic Vibration Absorbers: Revisiting Classical Results and Introducing New Tuning Strategies (part 1) – *a lecture by Professor Gaetan Kerschen, University of Liege, Belgium***
12:00-12:30 **Lunch**
12:30-13:15 **Dynamic Vibration Absorbers: Revisiting Classical Results and Introducing New Tuning Strategies (part 2) – *a lecture by Professor Gaetan Kerschen, University of Liege, Belgium***
13:15-13:30 **Discussion**

Dynamic Vibration Absorbers: Revisiting Classical Results and Introducing New Tuning Strategies

Professor Gaetan Kerschen
University of Liege, Belgium
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The classical dynamic vibration absorber is an effective passive vibration mitigation device widely used in, e.g., civil and automotive applications. This presentation first revisits the well-known equal-peak method proposed by Den Hartog almost one century ago. We show how an exact closed-form solution to the H-infinity optimization problem can be derived. In view of the narrow bandwidth of the dynamic vibration absorber, we then introduce new tuning strategies adapted to uncertain or nonlinear host structures. The second part of the presentation addresses novel practical designs of linear and nonlinear dynamic vibration absorbers, which include the joint use of topology optimization and additive manufacturing, and piezoelectric shunting with electrical and digital circuits.

The hand-outs of the lecture will be distributed among the participants

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Tilmelding skal ske til Professor Sergey Sorokin, Institut for Materials & Produktion, AAU, Fibigerstræde 16, 9220 Aalborg. Helst via e-mail svs@mp.aau.dk , senest den 12 november