Séminaire commun
LDMS/LaMCoS-Ecole Doctorale MEGA
Mécanique, Energétique, Génie Civil, Acoustique

Dynamics of Multi-mesh Gear Trains: Models and Experiments.

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Amphithéatre Godet - Bât. 107
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Dynamic behavior of gear trains has been one of the major areas of interest in power transmission engineering. Under dynamic conditions, gears experience larger loads resulting in increased noise and reduced product life. In this presentation, basic concepts of dynamic modeling of multi-mesh gear systems will be discussed. Main modeling assumptions such as continuous versus discrete parameters, linear versus nonlinear gear mesh, and time-varying versus time-invariant mesh stiffness will be discussed for both spur and helical gear systems separately. Validity of these assumptions will be examined through a number of gear pair experiments. These assumptions will then be applied to multi-mesh spur and helical gear systems (fixed center and planetary). Analytical solutions will be obtained. Parametric studies will be presented on the influence of key system parameters.

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