



SEMINAR
Institute of Theoretical and Applied Mechanics
of the Czech Academy of Sciences
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Czech Society for Mechanics,
and Institute of Theoretical and Applied Mechanics, CAS

invite you to two short lectures and discussion within the lecture series **ITAM Seminar**

Wei-Lin Ho, *Tamkang University, New Taipei City*: **Shaking Table Experiment of Curved Bridge with Polynomial Friction Pendulum Isolator**

The lecture presents an experiment to observe the behaviour of a curved bridge equipped with a seismic isolator when earthquake hits. The seismic isolator used in this experiment is the Polynomial Friction Pendulum Isolator (PFPI), which is efficient in variable frequency conditions. In this experiment, two kinds of earthquake waves are used as an input, the far-field and near-field cases. The study explores the influence of different entry angles of the waves on the behavior of the curved bridge. The findings demonstrate the positive impact of the PFPI in both earthquake wave scenarios and reveal the varying response of the curved bridge based on entry angles.

Chen-Xing Liu, *Tamkang University, New Taipei City*: **Thee dimensional Dynamic Analysis of Nonlinear material**

Dr. Tzu-Ying Lee, mr. Liu's advisor in Taiwan, has developed a method to solve the finite element problem, *New Implicit Nonlinear Dynamic Finite Element Method* (NINDFEM). The NINDFEM can solve problems faster than the traditional finite element method, because it makes the mass, stiffness, damping matrices diagonal. So one can find the inverse matrix easier. The lecture presents implementation of new material properties into the program code and solution by the Newmark beta method of direct integration. Finally, the method is illustrated by comparing the hysteresis loop and displacement with SAP2000 to verify its correctness.

**The seminar will be held on Wednesday, June 21, 2023 at 10:00 AM
at ITAM, Prague, small lecture room.**