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Forschungsuniversität • gegründet 1825

**Institut für Technische Mechanik**  
Prof. Dr.-Ing. habil. Thomas Böhlke  
Prof. Dr.-Ing. Carsten Proppe  
Prof. Dr.-Ing. Wolfgang Seemann  
Prof. Dr.-Ing. Dr. h.c. Jörg Wauer  
**Institut für Mechanik**  
Prof. Dr.-Ing. Karl Schweizerhof



## Mechanik-Seminar

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Referent: **Prof. Kevin D. Murphy**  
Division of Applied Mechanics, Department of Mechanical Engineering  
University of Connecticut, U.S.A.

Datum: Donnerstag, 8. November 2007  
Uhrzeit: 15.45 Uhr  
Ort: Geb. 10.23, SR1, 1. OG

Thema: **„A Sticky Situation: Observations of and Remedies to Stiction  
Failure of MEMS Cantilevers“**

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### Abstract

In recent years, the techniques for fabricating micro-electromechanical systems (MEMS) have improved to the point that wide scale use of these components is possible. And, while a few micro-scale devices have been implemented in commercial applications, they have barely scratched the surface of their potential. That leaves the obvious question: why haven't these micro-scale mechanical components emerged in the marketplace? In large part, the answer lies in contact and adhesion. Contact between nearby components, such as comb drives, micro-gear systems, and fluid control valves, can lead to sticking, which is commonly called *stiction* in the MEMS community. Of course, once sticking contact has occurred the device is no longer free to move (i.e., function properly) and it is referred to as having undergone *stiction failure*. The present seminar will describe two vibration based means for un-sticking these failed components. The accompanying models incorporate both the structural vibrations and fracture behavior, describing the contact interface. In addition, some curious experimental results will be described and explained using these basic models.

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**Alle Interessenten sind herzlich eingeladen.**  
Prof. Dr.-Ing. Dr. h.c. Jörg Wauer