

Einladung zum Vortrag

## How oscillating collapsible tubes extract energy from a viscous flow

Prof. Matthias Heil, Ph.D.  
School of Mathematics, University of Manchester, U.K.  
(derzeit Gast am Lehrstuhl für Numerische Mechanik)

Many physiological flows (e.g. blood flow in the veins and arteries or the flow of air in the pulmonary airways) are strongly affected by the interaction between the fluid flow and the vessel wall elasticity. Experimentally, the problem is typically studied with a 'Starling resistor', a device in which fluid is driven through a finite-length, thin-walled, elastic tube which is mounted on two rigid tubes and enclosed in a pressure chamber. One of the most striking features of this system is its propensity to develop large-amplitude self-excited oscillations. Our understanding of the mechanism(s) that initiate and maintain these oscillations is still limited. In this talk I will present recent theoretical and computational studies of this problem. In particular, I will present results of joint work with Sarah Waters (Nottingham, soon Oxford) in which we identified a mechanism by which an oscillating collapsible tube is able to extract energy from a viscous flow.

**Dienstag, 4. Sept. 2007**  
**11:00 Uhr**

**Seminarraum LNM**  
**MW 1237**



Für weitere Informationen: <http://www.lnm.mw.tum.de/events>  
Lehrstuhl für Numerische Mechanik • Prof. Dr.-Ing. W. A. Wall • TU München  
• Boltzmannstr. 15 • D-85747 Garching b. München • Tel 089-289-15300

Eine Vortragsreihe des  
Lehrstuhls für  
Numerische Mechanik