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# MATHEMATIKKOLLOQUIUM

Das Institut für Mathematik lädt zu folgendem Vortrag ein:

**Etienne Emmrich**

Institut für Mathematik, TU Berlin

## **On the well-posedness, limit behaviour, and numerical approximation of the peridynamic model in non-local elasticity theory**

The non-local peridynamic theory describes the displacement field of a continuous body by the initial-value problem for an integro-differential equation with second order time derivative but without spatial derivatives. The non-local integral part is determined by the so-called peridynamic horizon  $\delta$  which is the radius of interaction between material points taken into account.

Existence, uniqueness, stability, and other structural properties are established for the linear case corresponding to small displacements. Moreover, the limit behaviour as  $\delta \rightarrow 0$  and the relation with the Navier-Lamé equation of the classical linear elasticity theory is studied.

Finally, aspects of the spatial approximation are discussed and numerical simulations are presented.

**Zeit: Dienstag, den 11. September 2007 um 11:15 Uhr**

**Ort: Bauingenieurgebäude, Technikerstraße 13, 6. Stock, SR B609**

*Mechthild Thalhammer*

**Gäste sind herzlich willkommen!**