TECHNISCHE UNIVERSITÄT DRESDEN

Zentrum für Informationsdienste und Hochleistungsrechnen

EINLADUNG

zum

ZIH-Kolloquium

Titel: **Revisiting complex network robustness**

Referent: **Dr. Fernando Peruani**
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Abstract:
After a failure or attack the structure of a complex network changes due to node removal. We will show that the degree distribution of the distorted network, under any node disturbances, can be easily computed through a simple formula for non-correlated networks. Based on this expression, a general condition for the stability of finite complex networks under any arbitrary attack can be derived. We will apply this formalism to obtain an expression for the percolation threshold fc under a general attack of the form fk, where fk stands for the probability of a node of degree k of being removed during the attack.
We will show that fc of a finite network of size N exhibits an additive correction which scales as 1/N with respect to the classical result for infinite networks. We will discuss extensions of this approach for correlated networks as well as dynamical networks, in particular, dynamical self-propelled particle networks.

Ort: **Informatik-Neubau, Nöthnitzer Str. 46, INF 1096**
Zeit: **Freitag, 2. Oktober 2009, 11:00 Uhr**

gez. Prof. Dr. Wolfgang E. Nagel