Informatik-Kolloquium

Rheinisch-Westfälische Technische Hochschule Aachen
Fachgruppe Informatik

RWTH

EINLADUNG

Zeit: Donnerstag, 12. Januar 16.30 Uhr

Ort: Hörsaal AH IV, Ahornstr. 55

Referent: Dr. Ralf Klasing
LaBRI - Université Bordeaux 1 - CNRS

Thema: **Bringing internet into villages using wireless communication**

Abstract In this talk, we address the problem of gathering information in a central node of a radio network, where interference constraints are present. We take into account the fact that, when a node transmits, it produces interference in an area bigger than the area in which its message can actually be received. The network is modeled by a graph; a node is able to transmit one unit of information to the set of vertices at distance at most d_T in the graph, but when doing so it generates interference that does not allow nodes at distance up to d_I ($d_I \geq d_T$) to listen to other transmissions. We give a general lower bound on the number of rounds required to gather on any graph, and present an algorithm working on any graph, with an approximation factor of 4. We also show that the problem of finding an optimal strategy for gathering (one that uses a minimum number of time-steps) does not admit a Fully Polynomial Time Approximation Scheme if $d_I > d_T$, unless P=NP, and in the case $d_I = d_T$ the problem is NP-hard.

Es laden ein: Die Dozenten der Informatik