

## ICT08-004 - Personal Unsynchronized Cooperative Communications - PUCCO

### Abstract

Providing satisfactory indoor coverage of cellular networks in cities like Vienna is both difficult and costly. We propose cooperation between co-located mobile stations in a room or building to solve this problem. Such cooperation improves the link quality efficiently. It enables higher data rates in mobile broadband services for all cooperating users.

We will measure and model the indoor-to-outdoor link, as well as the links between the cooperating nodes. Cooperative synchronization and collaborative transmission schemes will be analyzed and tested. We will demonstrate the feasibility of the most promising scheme on a real-time testbed.

The number of base stations can be reduced. This leads to reduced costs for mobile operators and alleviates the issue of the acceptance of base stations by the local population.

### Keywords:

cooperative communications; distributed synchronization; radio channel modeling; collaborative beamforming; asynchronous coding schemes

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Status: Completed (01.05.2009 - 30.04.2011)

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Further links to the persons involved and to the project can be found under <https://www.gmbh.wwtf.at/funding/programmes/ict/ICT08-004/>