The Wireless IP Project:

www.signal.uu.se/Research/PCCwirelessIP.html

Studies ways to improve data transmission to/from mobile users by

- adaptive transmission
- co-optimization of radio interfaces, MAC- and higher layers.

Cooperation between Uppsala Univ. Chalmers and Karlstad Univ.

Started within PCC 2000-2002.

Supported by SSF 2002-2005 and by Vinnova 2001-2004.

Participates in the Wireless World Research Forum.

Participates in the EU 6FP IP **WINNER** (**W**irelss World **In**itiative **Ne**w **R**adio).

Radio interface and system study

The purpose of a specific radio interface is to be a focus for our research on algorithms and their interaction.

(Also, it is fun to try to design something extreme!)

Aim at **higher spectral efficiency** for **packet data** to/from **mobile users** in

- **cellular systems with wide area coverage**
  (100 Mbit/s/sector, 100 km/h)
- **Hot-spots/"Infostations"**
  (high local data rate, perhaps high mobility)
- **New WLANs** (longer range, higher data rate per access point)

Wireless IP Project participants:

Signals and Systems, UU	Signals and Systems, CTH	Karlstad Univ.
Mikael Sternad (proj. leader)	Arne Svensson	Anna Brunström
	Tony Ottosson	
Anders Ahlén	Mats Viberg	
Sorour Falahati	Tommy Svensson	
	PhD Students:	
Daniel Aronsson	Wei Wang	Stefan Alfredsson
Mathias Johansson (Oct. 04)	Ming Chen	Hannes Persson
Nilo C. Ericsson (Oct 04)	Krister Norlund (Ericsson)	Annika Wennström
	Collaborators:	
Saverio Mascolo U.Bari	Torbjörn Ekman Oslo U.	(Red = active in WINNER)

Research Interests:

Taking adaptive transmission towards its ultimate limit:

- **OFDM channel estimation** D.Aronsson, M.Sternad
- **Channel power prediction** A.Ahlén, D.Aronsson, M.Chen, T.Ekman, M.Sternad
- **Link adaptation** S.Falahati, T.Ottosson, M.Sternad, A.Svensson, W.Wang
- **Scheduling** N.C.Ericsson, M. Johansson, K.Norlund, T.Ottosson, M.Sternad
- **Adaptive OFDM system study** A.Ahlén,A.Brunstr.,T.Ottosson, M.Sternad, A.Svensson

Investigating and utilizing interlayer interaction:

- **Utilizing soft information** A.Brunström, T.Ottosson, H.Persson
- **TCP over wireless** S.Alfredsson, A. Brunström, S.Mascolo, M.Sternad