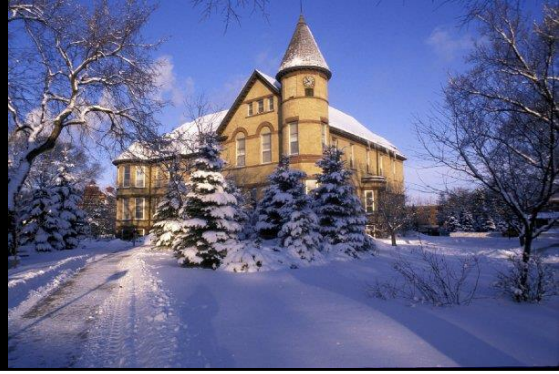
North Dakota State University
Electrical and Computer Engineering



Flexible hybrid radio: making wireless communications cooperative and wearable

April 28th, 2011 @ ND NASA EPSCoR

Dr. Hongxiang Li

Relevant to NASA

- Space Suit research
  - Low size, weight and power (SWaP) flexible multi-radio communication system
- EVA (Extra Vehicular Activity) digital radio
  - Frequency-agile, flexible and durable radio for telemetry, ranging, voice and data

North Dakota State University NDSU

Work accomplished

- Developed multicarrier joint coding scheme for broadcast network and evaluate its performance
- Studied multi-layered broadcast and unicast hybrid network and derived the capacity limit

North Dakota State University NDSU

Students and publications

- Two students
  - Yingjie Yang (M.S.)
  - Yang Du (Ph.D.)
- Two papers
  - Y. Du, H. Li, Y. Yang, etc, “A guard-resident cooperative spectrum sensing scheme in cognitive ad-hoc network”, submitted to IEEE VTC 2011
  - S. Liu, H. Li, Y, Yang, W. Lin, “Capacity of a Generic Broadcast and Unicast Hybrid Cellular System”, submitted to IEEE Globecom 2011

Future plan

- Journal paper submissions
  - IEEE Trans. on Broadcasting
  - IEEE Trans. on Wireless Comm.
- External proposal
  - NASA or ONR (white paper currently pending)
  - NSF Faculty Early Career Development Program

North Dakota State University NDSU