

MURI Research Review
Short-Range Ultra-Wideband Systems

University of Southern California: Bob Scholtz (P.I.), Keith Chugg, Won Namgoong
University of California, Berkeley: Bob Brodersen, David Tse
University of Massachusetts: Dave Pozar, Dan Schaubert, Dennis Goeckel

Wednesday, August 20, 2003

Old Town Alexandria Holiday Inn, 480 King Street, Alexandria, Virginia

PRELIMINARY AGENDA:

- 8:30 AM: Registration, continental breakfast
- 9:00 AM: Opening comments from Bob Ulman, US Army Research Office
- 9:05 AM: Introduction -- Scholtz
The Team, Initial Objectives, Collaborative Focuses, External Interactions to Date
- 9:20 AM: Algorithm and System Architecture Studies
UWB Acquisition -- Chugg (Goeckel/Scholtz)
UWB Tracking -- Chugg (Goeckel/Namgoong/Scholtz)
Channelized UWB Receivers -- Namgoong
Alternatives to Selective Rake -- Goeckel
Capacity Limits of UWB Impulse Radios -- Tse (Dana Porrat, UC Berkeley)
Possible grad student presentation --
UWB Frequency Domain Processing (Bob Weaver, USC)
- 10:35 AM: Break
- 10:45 AM: Antennas and Propagation
Simulation of UWB Antennas and Circuits -- Schaubert
UWB Link Budgets -- Pozar
Antennas for UWB -- Pozar
Optimal Waveform Studies -- Pozar
UWB Synthesizer Project -- Scholtz/Namgoong/Pozar
- 12:00 PM: Lunch
- 1:15 PM: Circuit Design
UWB Low Noise Amplifier Design -- Namgoong
An Integrated UWB Transceiver -- Brodersen
Possible grad student presentations --
UWB Low Noise Amplifier Design and pulse generation in CMOS (Stanley Wang, UCB)
Single chip low power CMOS UWB transceiver design (Ian O'Donnell, UC Berkeley)
A CMOS Implementation Design for UWB Acquisition, Tracking and

Detection (Mike Chen, UC Berkeley)

2:30 PM: Break

2:40 PM: Future Goals

Pozar:	Fundamental Limits on Transient Radiation
Schaubert:	UWB Arrays for Direction of Arrival Estimation
Scholtz:	Control of the UWB Waveform
	Multipath-Embracing UWB Time Transfer and Location Techniques
Tse:	Refined modeling/characterization of the UWB channel
Brodersen:	UWB Performance and CMOS Impairments
	Complete Asset Tracking System

3:30 PM: Comments and questions from attendees

4:00 PM: Evaluators' Meeting