

ELECTRICAL & COMPUTER ENGINEERING SEMINAR

“Autonomous Mobile Radios for Emergency Operations in Subterranean Environments”

by

Dr. Manoja Weiss
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LSC 203-5

Abstract & Biography

Abstract. Emergency operations such as search and rescue missions in subterranean environments including mines, tunnels and subway systems are very challenging due to limited entrances and exits and paths that are quite restrictive in their geometries. Wireless communications, a key tool in any modern emergency operation, is also restrictive in such environments due to essentially one dimensional curvilinear propagation along tunnel waveguides and significant multipath propagation. Wireless relays are necessary in these environments to propagate the signal around bends in tunnels. In order to penetrate into the tunnel environment, several relays may be needed to increase penetration distance. This talk reports on recent and current work at the Colorado School of Mines, on the use of mobile radio relays programmed to move autonomously to promote or reconfigure the connectivity of a subterranean wireless network.

Biography. Manoja Weiss, originally from Sri Lanka, is an Assistant Professor with the Division of Engineering at the Colorado School of Mines. She is interested in electromagnetic propagation in tunnel environments, as well as the deployment of stationary and mobile wireless sensor networks to improve the safety of such areas. Since joining CSM in 2003, she has developed, and now teaches, an undergraduate electromagnetics course, as well as graduate classes on RF/Microwave Engineering, and Wireless Communication Systems. She obtained her Ph.D. in 2001 at the University of Colorado, Boulder, under the guidance of Zoya Popovic, and worked for 2 years at Phiar Corporation, Boulder, designing and building THz antennas coupled to MIM diodes.

Please contact Prof. Branislav Notaros, notaros@engr.colostate.edu, with any questions.