Department of Electromagnetic Field

Faculty of Electrical Engineering, CTU in Prague

would like to invite you

to a guest lecture

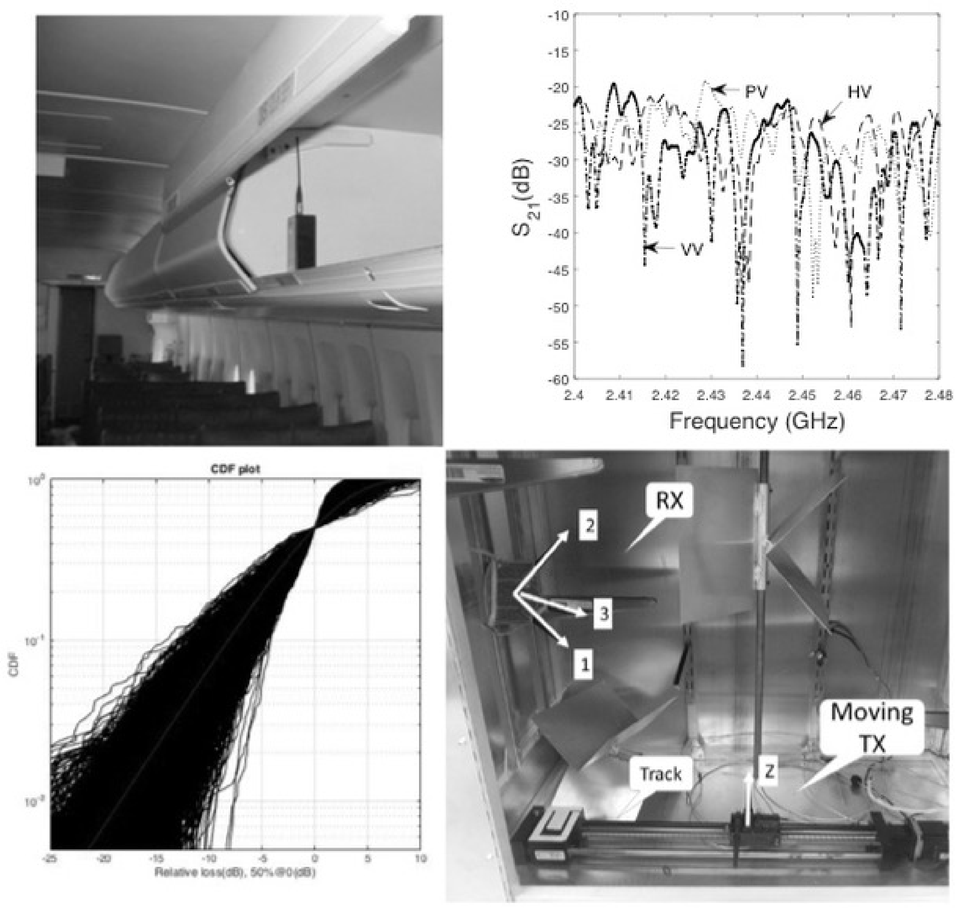
Prof. Jeff Frolik

Channel characterization and the management of wireless sensors (and other distributed things)

When: 17th January 2017 at 2:30 p.m.

Where: Technicka 2, Prague 6, room no. 80

Motivated by the potential use of wireless sensors for aircraft structural health monitoring, this presentation first discusses propagation studies conducted in highly cluttered environments. The results indicate that frequency selective fading can be more severe than the worst-case (i.e., Rayleigh fading) presumed for mobile communications. These "hyper-Rayleigh"environments are also shown to depolarize signals in all three spatial directions thus motivating new compact “tripolar” antenna systems that can be readily integrated with machine-to-machine device packaging. Second, the problem of how to coordinate the participation of a large and unknown population of devices is discussed. This problem was initially studied as a means to manage individual nodes in a wireless sensor network in an energy efficient manner (i.e., requiring minimal communications). These methods are now being advanced as a decentralized approach to coordinating distributed energy resources, such as thermal and electric storage, through an approach called packetized energy management.



Jeff Frolik is a Professor of Electrical Engineering at the University of Vermont and is the current Fulbright-CTU Distinguished Chair at the Faculty of Electrical Engineering, Czech Technical University in Prague. He received his PhD in Electrical Engineering Systems from the University of Michigan. His ongoing research interests are in the areas of sensor networks, wireless channels, coordination of distributed energy assets, and engineering education. He is co-founder of the startup Packetized Energy.