

Towards 5G Wireless Communications Based Cognitive Radio: Challenges for Future Intelligent Transportation Systems (ITS)

The dramatic increase in the demand for radio spectrum and the actual low spectral efficiency, due to the traditional static frequency allocation policy, has spurred the development of a next generation wireless technology referred to as cognitive radio (CR).

CR based solution for ITS, in particular railways & aeronautic, has the potential for providing significant benefits, including interoperability, improved spectral efficiency, optimization of radio resource usages, lower deployment and operational costs, and improvement of communications reliability.

This talk will elaborate on challenges of radio environment awareness of a Cognitive Radio device (e.g. spectrum awareness, waveform & modulation awareness, etc.) for railways and aeronautic context, that is, a high-speed vehicular context, besides difficult electromagnetic environments resulting a heavy-tailed impulsive noise and selective channels.

We also provide some on-going research projects directly related to CR for IST.