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Title: Uncoordinated Multiple Access for Vehicular Networks

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Abstract: Coded slotted ALOHA (CSA) is an uncoordinated multiple access technique that promises throughputs close to those of coordinated multiple access methods. It was originally proposed for unicast transmission in satellite networks. The main idea is to exploit successive interference cancellation which, under certain assumptions, makes CSA very similar to codes on graphs. In this talk, I will describe how CSA can be used in vehicular networks. We will compare CSA with the carrier sense multiple access currently adopted for vehicular communications. We will discuss how the theory of codes on graphs helps to design good CSA schemes and how the design criteria need to be adapted to vehicular communications.

Bio: Mikhail Ivanov was born in St. Petersburg, Russia. He received his M.Sc. in Engineering and Technologies from St. Petersburg State Electrotechnical University “LETI”, Russia, in 2009, and the degree of Licentiate of Engineering (Teknologie Licentiatexamen) from Chalmers University of Technology, Gothenburg, Sweden, in 2013. He is currently working towards the Ph.D. degree at the Dept. of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden. His research interests include channel coding, modulation, and information theory, as well as coded random access techniques in vehicular ad-hoc networks.