Abstract: Much progress can be observed in the domain of Inter-Vehicular Communication (IVC), looking back at the last decade. In this growing community, many ongoing activities focus on the design of communication protocols to support safety applications, intelligent navigation, multi-player gaming and others. Very large projects have been initiated to validate the theoretic work in field tests and protocols are being standardized. With the increasing interest from industry, security and privacy become key aspects in the stage of protocol design in order to support a smooth and carefully planned roll-out. Researchers from academia and industry recently met at an international Dagstuhl seminar to discuss open research challenges as well as open issues related to market-oriented design.

From an industry’s point of view, vehicular networking serves as one of the most important enabling technologies required to implement a myriad of applications related to vehicles, vehicle traffic, drivers, passengers and pedestrians. In this tutorial we will look into applications and use cases of vehicular networking followed by an overview of the standardization activities. Next we will cover the communication protocol design as well as the deployment plans. We will also briefly talk about simulation tools for evaluation of various protocol designs. Before concluding, we will take a glimpse at the recently emerging reality of electric vehicles and issues surrounding them. Finally we will conclude with open issues that require further research.

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