

## WWVC 2013

Abstract:

### ***Medium Access Control for Delay-Sensitive Platooning Applications***

Recent advances in cooperative driving hold the potential to significantly improve safety, comfort and efficiency on our roads. An application of particular interest is platooning of trucks, where it has been shown that keeping a minimum inter-vehicle distance results in considerably reduced fuel consumption. This, however, puts high requirements on timeliness and reliability of the underlying exchange of control messages between platoon members, i.e. the exchange of periodic status updates and the dissemination of event-based warning messages. The recently adopted European profile of IEEE 802.11p employs a random medium access protocol over a common control channel which may result in excessive delays during high network loads. We compare the performance of this standard compliant inter-platoon communication to our own proposal that instead uses a dedicated service channel for platooning applications. Service channels typically have less strict requirements on send rates, data traffic types and medium access methods and our service channel solution is therefore able to combine a random access phase with a centralized, scheduled access phase. This enables us to guarantee timely channel access for periodic control messages between neighboring platoon members while still providing reasonable dissemination delays for warning messages throughout platoon.

**Bio:**

Annette Böhm received her BSc in Information and Communication Technology and MSc in Computer Systems Engineering from Halmstad University, Sweden, in 2003 and 2004, respectively, where she recently completed her PhD in Information Technology with a thesis on delay-sensitive wireless communication for cooperative driving applications.