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**Title of the presentation:** Vehicle yaw control via coordinated use of steering/braking systems

**Abstract:**

The aim of this presentation is to present a novel methodology that deals with steering/braking coordination task for vehicle yaw control. For steerability enhancement, only active steering control is involved. However, when the vehicle reaches the handling limits, both steering and braking collaborate together to ensure vehicle stability. The coordination of these actuators is achieved through a suitable gain scheduled LPV (Linear Parameter Varying) controller. The controller is synthesized within the LMI (Linear Matrix Inequalities) framework, while warranting  $H_\infty$  performances. Judging the vehicle stability region is deduced from the phaseplane of the sideslip angle and its time derivative. Since the sideslip angle cannot be measured in series production vehicles, it is estimated using a model-based observer. The simulation results show the effectiveness of the proposed control scheme when the vehicle is subject to different driving situations.