



TRANSPORTATION SEMINAR SERIES

Friday, December 7, 2007

4 - 5 p.m. in 240 Bechtel Engineering Center

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The butterfly effect- imbalances in lane change accommodation time and lasting disturbances.

Abstract: Classic highway traffic flow theory can explain the evolution of signals and waves once they form. Given sufficient boundary conditions the theory captures the evolution of the traffic state over space and time. But one rarely finds such ideal boundaries on real highways. Often disturbances arise within a region that classic theory would tell us should be homogeneous. These disturbances often grow and give rise to unstable traffic upstream, e.g., resulting in stop-and-go conditions during congestion with an increased frequency of accidents. This talk will examine one potential source of these disturbances, namely the fact that after a lane change maneuver drivers accommodate an entering vehicle quicker than a departing vehicle (mandatory accommodation versus discretionary accommodation). After illustrating this imbalance on two facilities, the talk will explain how it can give rise to lasting disturbances.

Bio: Dr. Coifman is an associate professor at the Ohio State University with a joint appointment in the department of Civil and Environmental Engineering and Geodetic Science and the Department of Electrical Engineering. His research emphasizes extracting more information about traffic flow both from conventional vehicle detectors and emerging sensor technologies. His work has been recognized by the ITS America Award for The Best ITS Research and an NSF CAREER award. Dr. Coifman earned a PhD in Civil Engineering and Master's Degrees in Civil Engineering and Electrical Engineering and Computer Science from the University of California at Berkeley.

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