How do traffic jams form on a long road? Will a driver encounter few large jams, or many smaller ones? How fast will the jams grow in time? Analyzing a simple model of fast and slow cars, we discovered that the answer depends sensitively on the number of lanes. For a single-lane road, many small jams form and persist; for two lanes or more, small jams form initially but then merge into bigger ones until, eventually, only a single jam remains. In this case, the average jam size increases with time $t$ as $t^{2/3}$ which is much faster than in related models.

Traffic falls into the realm of non-equilibrium phenomena. The fundamental understanding of such complex systems, consisting of many interacting components and carrying energy or mass currents, forms a central goal of modern statistical physics.

**Education and outreach:**
Undergraduate and graduate research is an important component of our project. In particular, undergraduates often conduct pilot studies in order to explore a more speculative issue. If an intriguing discovery results, we know that a full-scale analysis will be worth the effort. The work outlined here was first initiated by an undergraduate student, Jay Mettetal (now at MIT). Currently, five undergraduates, *David Adams, Mike Avery, David Erickson, Sam Gong* and *Brian Skinner* and two graduate students, *Jiajia Dong* and *Sayak Mukherjee*, are partly supported by this project.

*Back row, from left: Sam Gong, Mike Avery, Royce Zia, and David Adams; front row, from left: Sayak Mukherjee, Beate Schmittmann, Jiajia Dong and Brian Skinner. David Erickson (not in photo) won a fellowship to spend part of his summer at UCLA.*