**iPAM** institute for pure & applied mathematics

# IPAM VIRTUAL PUBLIC LECTURE BY BENJAMIN SEIBOLD

## The Frustrating Beauty of Traffic Waves --- And How Automated Vehicles Can Prevent Them

**Monday, November 23, 2020**
**2:00pm Pacific Standard Time (PST)**

A distinguishing feature of vehicular traffic flow is that it may exhibit significant wave patterns. This talk demonstrates that those frustrating (when stuck in traffic) traffic features possess an intriguing structural beauty (when seen from the outside). Moreover, these waves can arise without apparent reason, as phantom traffic jams, from the collective behavior of all drivers on the road; and they result from similar dynamics as detonation waves, cloud patterns, or galaxies. Then it is shown, via computer simulations and experiments, how only a small number of automated vehicles on the roads suffices to prevent traffic waves, thus making traffic for everybody safer, cleaner, and more energy-efficient.

This lecture will be accessible to a general audience.

## Benjamin Seibold
## Temple University

Benjamin Seibold is an Associate Professor of Mathematics at Temple University, and the Director of the Center for Computational Mathematics and Modeling. His research combines mathematical analysis, computation and simulation, and experiments to answer questions about many real-world phenomena, including traffic flow, autonomous vehicles, fluid flows, radiation transport, and invasive species.

This public lecture will be held over Zoom. All participants must register by Friday, November 20 to ensure they receive the Zoom details to participant. Registration is free.
For more information and to register, visit
http://www.ipam.ucla.edu/seibold20