Traffic dynamics

- Model traffic flow on **single lane** freeway with **bottleneck**

- Established model: *Intelligent Driver Model*
    - Each vehicle's acceleration determined by gap to leading vehicle, speed difference, … → **ODE**
    - Observation: Formation of stop-and-go waves around bottlenecks
    - Can instability still be observed at low speeds?

- Planned extension: **traffic light**
    - **Forced** stop-and-go waves
    - Vary green light period
        - Interaction with natural instability?
        - Resonance possible?
        - Optimal switching frequency?