MODELING AND OPTIMIZATION OF TRAFFIC FLOW IN URBAN AREAS

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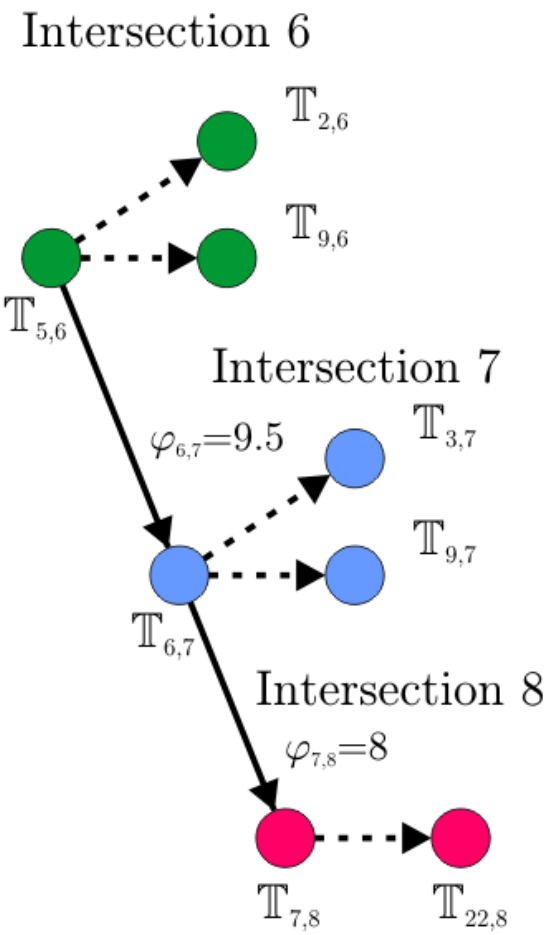
Goals and Objectives

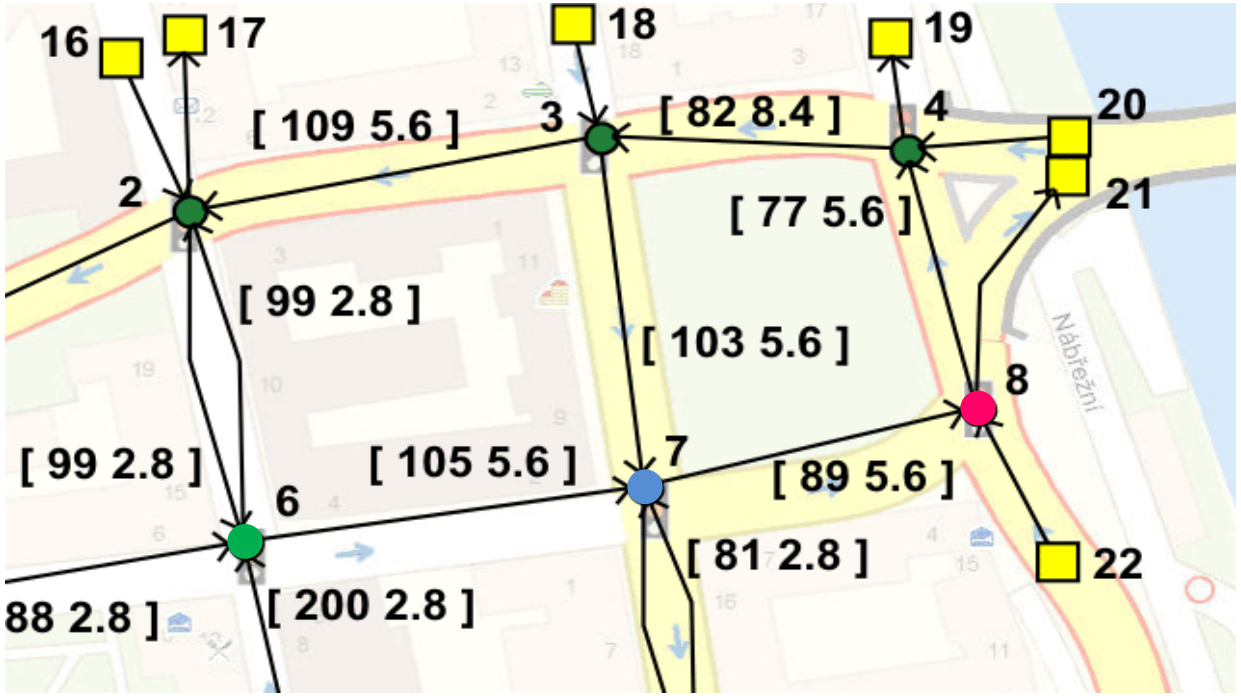
- Improve efficiency of **light controlled** intersections in urban area
- Motivate to **decrease congestions**, accidents and environmental load
- Focus on **modeling and optimization** techniques

Model and Optimization Techniques

- Based on
  - Constant Speed Continuous Petri Nets
  - Graph theory
  - Scheduling and Optimization algorithms
- Modeling most of the traffic aspects
  - General intersection architecture
  - Free space
  - Distribution rate
  - Street length, number of lanes and maximal allowed vehicle speed
  - Green wave strategy

Example

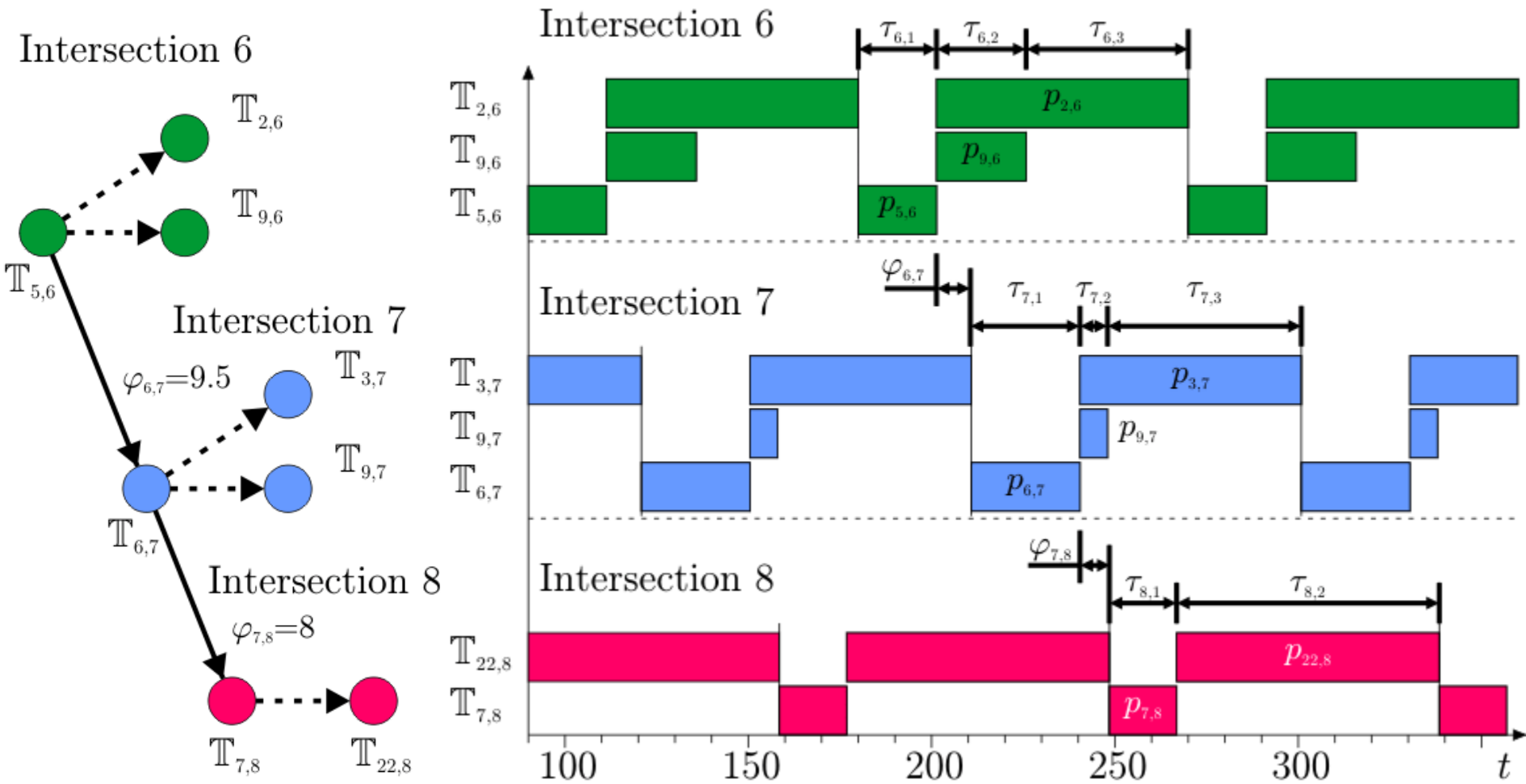




- Solve by Chretiene algorithm
  - scheduling with communication delays

Solution

Simulation time for one intersection
- Discrete PN: 4927s (149523 states)
- Continuous PN: 2s (34 states)



Thank you for
your attention.

Questions?