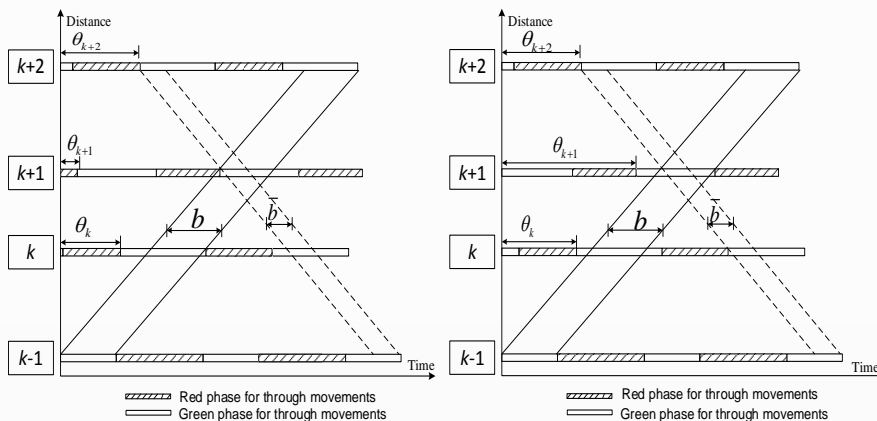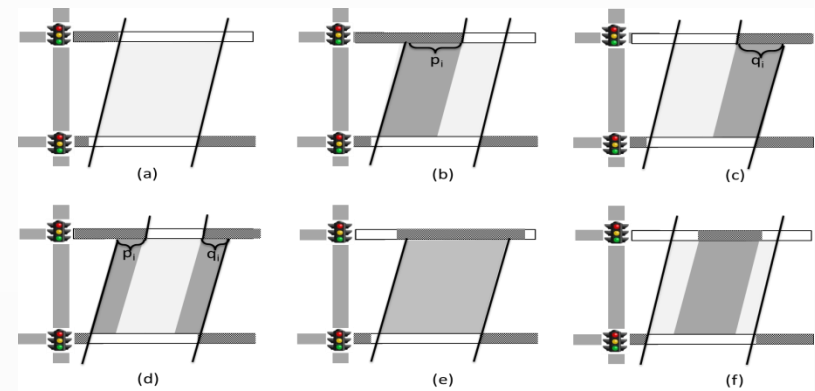# STABILIZING BUS HEADWAYS BY MINIMIZING BUS TRAVEL TIME VARIANCES ALONG AN ARTERIAL

by Yao Cheng, Hyeonmi Kim, Gang-Len Chang (University of Maryland)

- This study develops a **passive control method** to **reduce the variance of bus headways** at bus stops by **adjusting signal offsets** while ensuring the progression of passenger cars.
- The proposed model takes advantage of the linear nature of the existing signal progression programs for passenger cars which often yield **multiple sets of offsets with the same maximized progression band**.
- A search algorithm is developed to **identify the set of signal offsets that can achieve the minimal signal delay variance for buses** from those non-inferior offsets for passenger cars.
- The results of the numerical analysis confirm that the proposed algorithm is able to reduce the bus headway variance without incurring excessive delay to other traffic.

<Multiple optimal solutions of a band maximization model>

<Six different relations of green phases between consecutive intersections>