

ABSTRACT:

## **AGGLOMERATIONS AND POLLUTION FROM A GLOBAL PERSPECTIVE**

**PHILIPP SCHRAUTH**

UNIVERSITY OF POTSDAM

26 November 2019 from 02.00-04.00 p.m.  
Campus Griebnitzsee, house 1, room 2.31  
August-Bebel-Str. 89, 14482 Potsdam

---

We analyze urban air pollution worldwide using grid-level satellite data for over fifteen years. We document basic facts about the distribution of pollution (NO<sub>2</sub> and PM<sub>2.5</sub>) in space and its evolution over time. We find that more than 80 percent of the world population are exposed to PM<sub>2.5</sub> – levels exceeding the annual threshold set by the World Health Organization. Further, we analyze how urban pollution is affected by urban population density and the size of cities. We use historical instruments as well as the suitability of locations for agglomeration to instrument population density. We find that a 10% increase in density increases air pollution by about 1-2%. Finally, we analyze the heterogeneity of the pollution-density relation with respect to various country characteristics and for different sub-groups. We find that the density effect tends to be largest in Asia and in high income countries.