

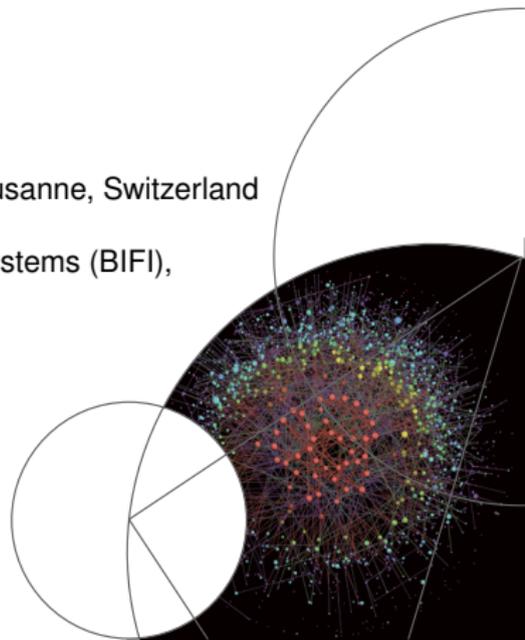


Several multiplexes in the same city: The role of socioeconomic differences in urban mobility

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A moving world



Proceedings of the National Academy of Sciences of the United States of America

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Multiscale mobility networks and the spatial spreading of infectious diseases

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Edited by H. Eugene Stanley, Boston University, Boston, MA, and approved October 13, 2009 (received for review June 19, 2009)

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December 22, 2009
vol. 106 no. 51
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Travellers are not all the same!



KUKUAEWII

A moving world

Question:

How the differences in the socio economic status of travellers affect the urban mobility?

UAEW



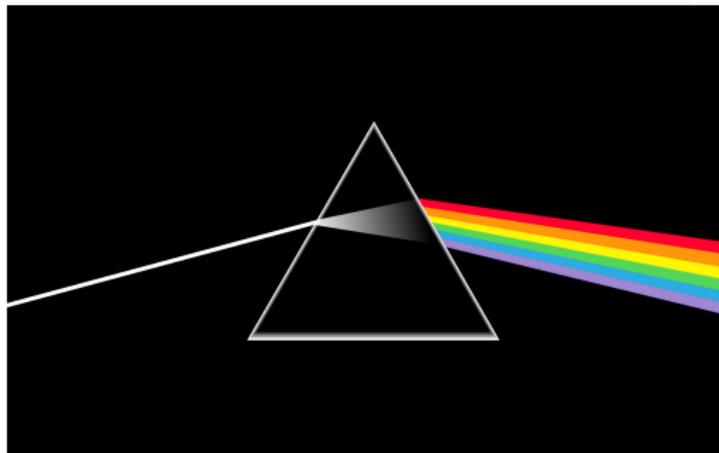
Seeing through complex systems



Complex networks are like an x-ray lens for complex systems.

Seeing through complex systems

Multiplex networks are
like an x-ray prism!



NEW

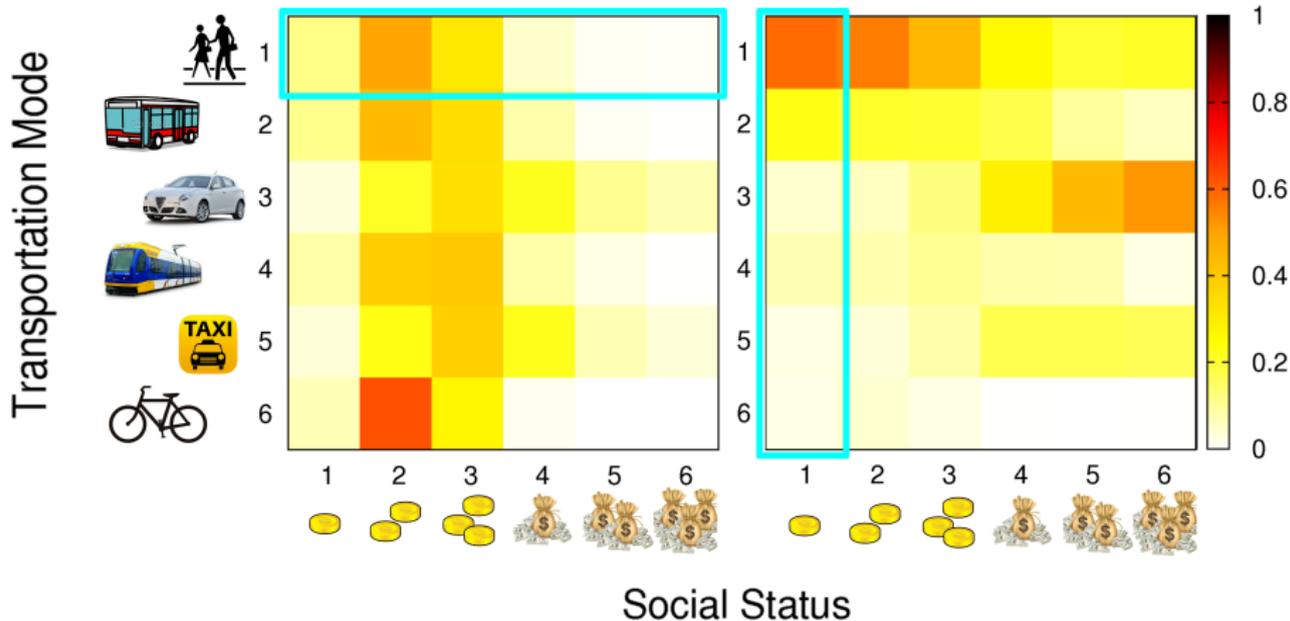
Datasets



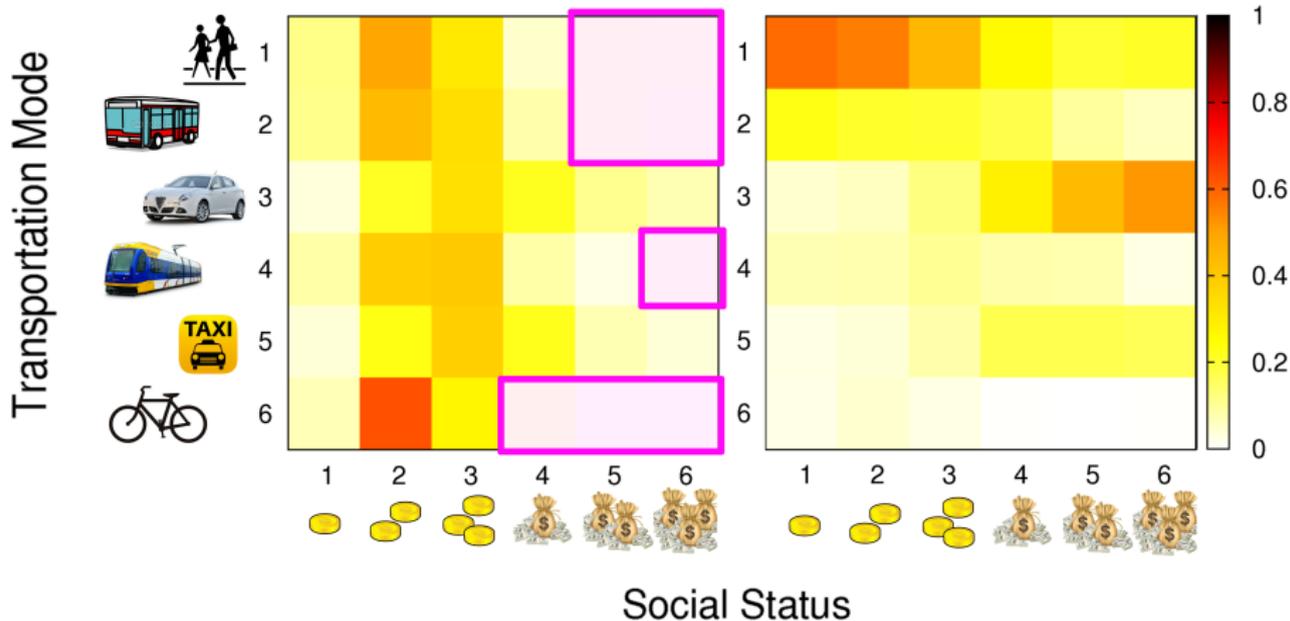
Main features:

- Method of data collection: Survey.
- Two Colombian cities: Bogotá and Medellín.
- Population divided in six Socio Economic Status (SES).
- Transport modes grouped into six different classes (layers).

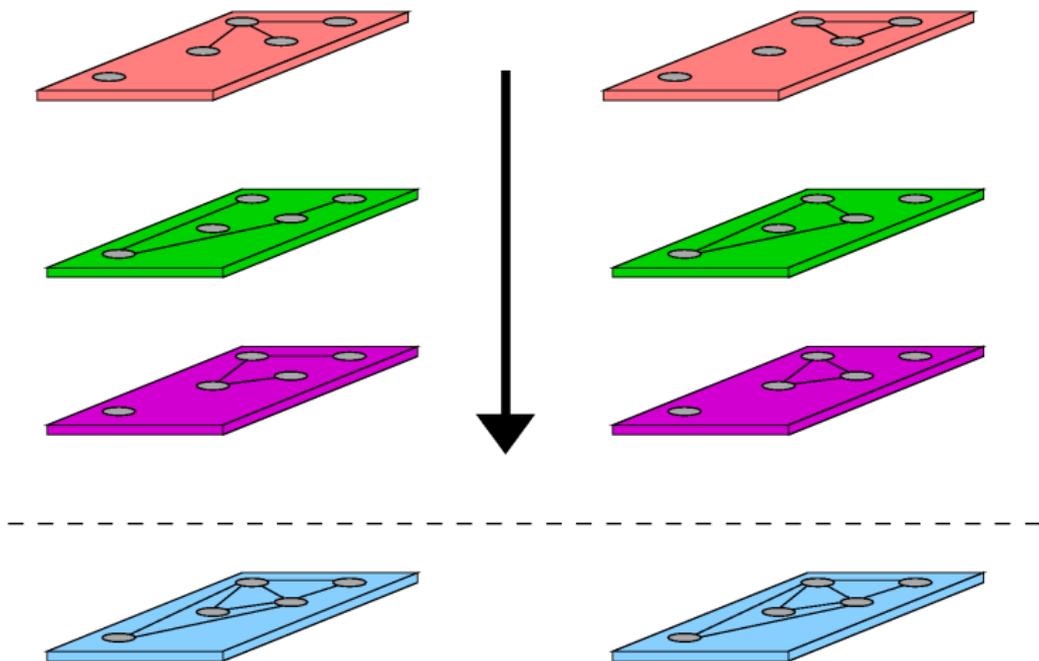
Segregation and Multimodality



Segregation and Multimodality



Multiplex adiabatic projection

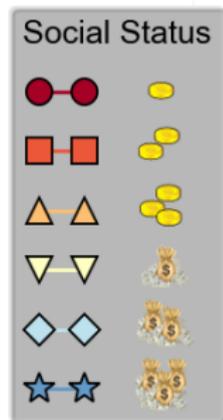
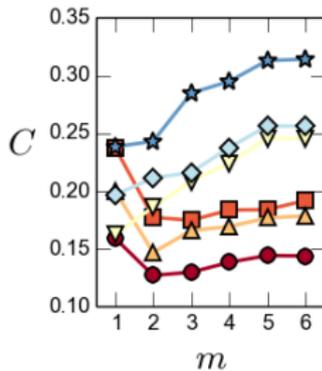
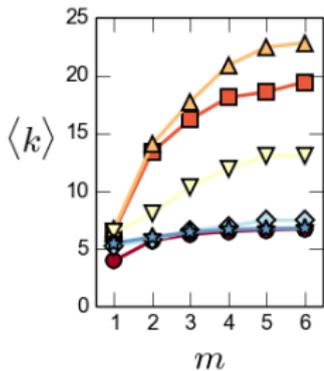
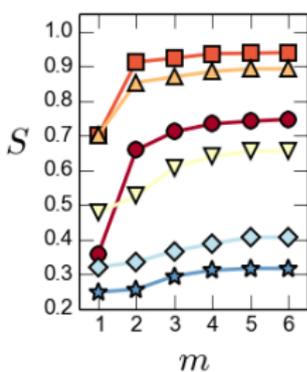


AC et al. "Emergence of network features from multiplexity". Sci. Rep., **3**, 1344. (2013).

Multiplex adiabatic projection

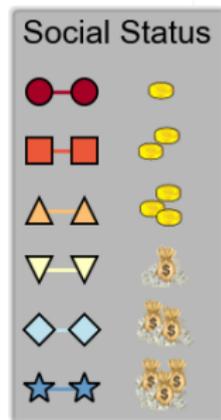
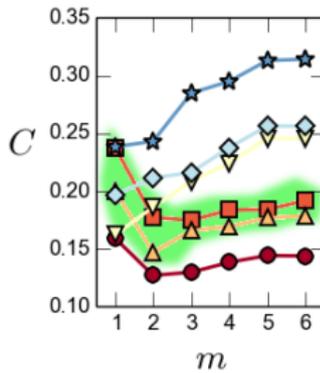
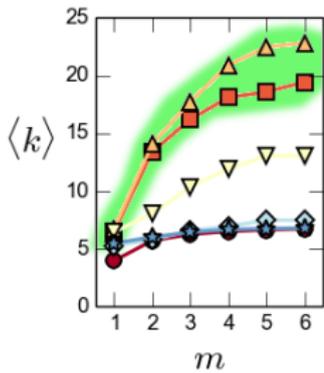
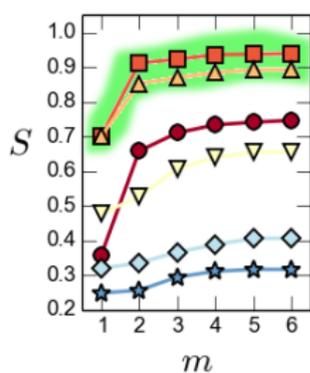


Percolation & Connectivity



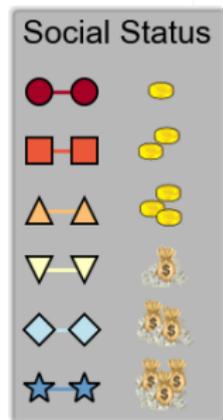
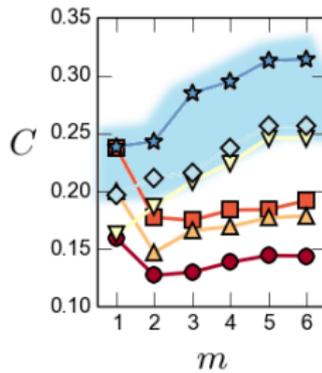
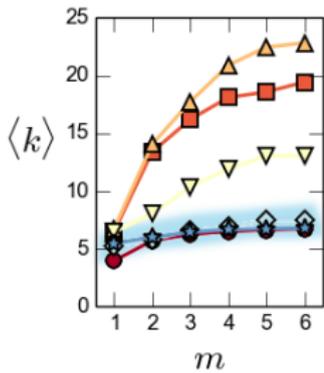
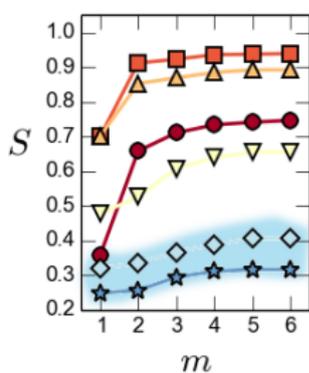
REVIEW

Percolation & Connectivity



REWIR

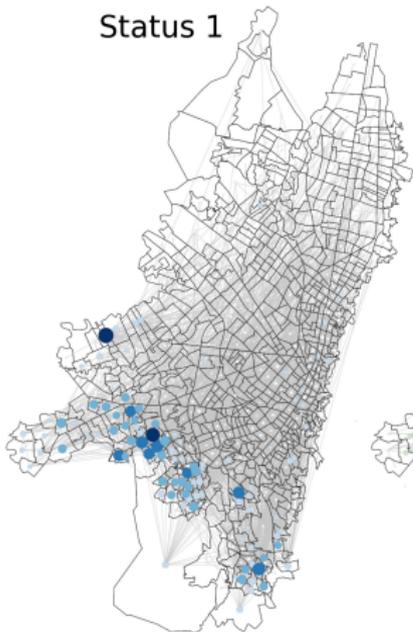
Percolation & Connectivity



REVIEW

Percolation & Connectivity

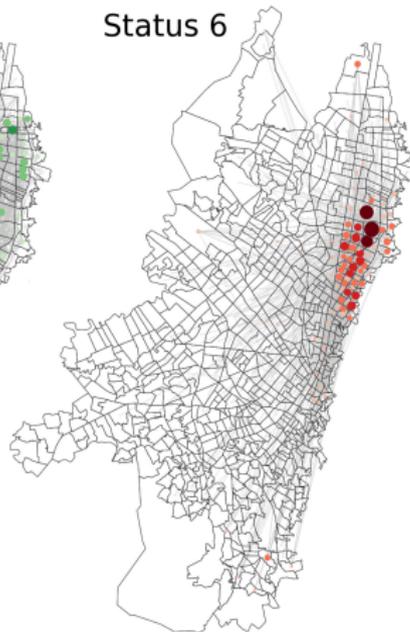
Status 1



Status 3



Status 6



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Take home messages

- Differences in the wealth status of travellers reflect on the topological properties of mobility networks.
- Some social status use only few transportation modes (**segregation**) while others display **multimodality**.
- The adiabatic projection technique as a tool to understand the relation between mobility and topological properties.



DO THE RIGHT MIX

Acknowledgements

Special thanks to:

- ★ Laura Lotero – Nat. Univ. of Colombia, Medellín
- ★ Rafael Hurtado – Nat. Univ. of Colombia, Bogotá
- ★ Jesús Gómez-Gardeñes – Univ. of Zaragoza, Zaragoza

<http://arxiv.org/abs/1408.2484>

To appear in the book "Interconnected Networks",
Springer complexity series (2015).