

CALL FOR PAPERS

In the last 20 years, complex network theory has experienced an important growth in popularity. This has been the result of not only many important theoretical insights, e.g. the models introduced by A. L. Barabási, R. Albert, D. J. Watts or S. H. Strogatz, but also of the wide applicability of network principles in the study of real-world systems. Since the initial works describing the topology of various transportation systems, analyses have become more sophisticated and cover a wide range of domains.

Transportation systems have been no exception, as their own nature, as well as the processes developing on top of them, lend themselves well to network representations. To illustrate a specific example, nodes in an air transportation network can be airports, but could as well be sectors, routes, or even aircraft themselves. Links, on the other hand, represent the connectivity between nodes, e.g. direct routes among airports. From the point of view of transportation engineering, this representation yields two important benefits. On one hand, networks can be used to describe a plethora of processes on top of the basic transportation itself, such as the emergence of delays or the propagation of information. On the other hand, these processes can then be optimised, e.g. strategies for reducing delays can be simulated. All of this takes into account the networked structure of the transportation system, i.e. not just the dynamics of individual elements, but also how they mutually interact.

This Special Issue aims to build on these foundations and to explore new ways in which complex network representations can be used to better understand and optimize transportation systems. We especially welcome high-quality original research and review articles both proposing novel approaches and applying consolidated ones on real-world scenarios in transportation.

Potential topics include but are not limited to the following:

- ▶ Novel network representations of transportation systems
- ▶ Network views of novel transportation systems, e.g. urban air mobility
- ▶ Evolution of transportation systems, local vs. global viewpoints
- ▶ Resilience of transportation systems from a network perspective: from the identification of critical elements, to network strengthening strategies
- ▶ Emergent and non-linear dynamics: from traffic jams, to the propagation of delays
- ▶ Collaborative decision making on networks: how can multiple agents collaborate to reach a global benefit?
- ▶ Multi-modal/layered transportation networks: how different modes (e.g. air transport and high-speed train) interact, and how this affects passengers

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?specialIssue=603432>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Massimiliano Zanin, Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC), CSIC-UIB, Palma de Mallorca, Spain
massimiliano.zanin@gmail.com

Guest Editors

Xiaoqian Sun, Beihang University, Beijing, China
sunxq@buaa.edu.cn

Sebastian Wandelt, Beihang University, Beijing, China
wandelt@informatik.hu-berlin.de

Submission Deadline

Friday, 26 March 2021

Publication Date

August 2021