

## Welcome Message from NetCal 2018 Co-Chairs

As early as in mid-1970s, Leonard Kleinrock already highlighted that “We must face the fact that authentic queueing problems seldom satisfy the assumptions made throughout most of the literature available on queueing theory: stationarity is rare, independence occurs only occasionally, and ergodicity is not only unlikely but is also impossible to establish with measurements over a finite time!”. Even though in the past half century, queueing problems and queueing theory have expanded enormously, this fact remains. In addition, modern queueing systems are often required to provide services with guarantees, sometimes even in the worst case. At the same time, Kleinrock also envisioned “an exciting ‘new’ branch of queueing theory. . . that deals with methods for finding approximation or bounding behaviour for queues”. Network calculus is such a ‘new’ theory.

While network calculus was initially intended for performance guarantee analysis of queueing systems arising in Internet networks, it has been extended and applied to a much wider range of areas. These include various other types of communication networks such as wireless networks, sensor networks, time-sensitive networking (TSN), and wireless-powered communication systems. In addition, real-time systems (RTS), networks/systems on chip, computing systems, smart grid systems, energy storage systems and operations research have also found network calculus to be a useful tool.

The 2018 International Workshop on Network Calculus and Applications (NetCal 2018), held as part of the 30th International Teletraffic Congress (ITC 30), will provide a forum for researchers and practitioners to present and discuss ideas and contributions in network calculus and its applications. For NetCal 2018, a total of 18 papers were registered, out of which 16 papers were finally submitted. All papers underwent a rigorous review process: each paper received at least four independent reviews. Based on the reviews, the quality of papers, and extensive discussion among the workshop chairs and with the main ITC conference chairs, 10 papers were finally accepted for the workshop program.

The NetCal 2018 workshop could not have been a success without the excellent work that has been performed by the technical program committee members/reviewers. As organizers of the workshop, we thank them all. In addition, we would like to thank Jean-Yves Le Boudec for providing a keynote at the workshop. Furthermore, we express our sincere appreciation to the organizers of ITC 30, in particular, Tobias Hossfeld, Thomas Zinner, Chiara Buratti, Poul E. Heegaard, Matthias Hirth and Florian Metzger for their support.

NetCal 2018 Workshop Co-Chairs

Yuming Jiang (Norwegian University of Science and Technology, Norway) (Chair)  
Jens Schmitt (University of Kaiserslautern, Germany) (Co-Chair)  
Markus Fidler (Leibniz Universität Hannover, Germany) (Co-Chair)

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