

# 29th International Conference on Concurrency Theory

CONCUR 2018, September 4–7, 2018, Beijing, China

Edited by  
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## ■ Preface

This volume contains the proceedings of the 29th Conference on Concurrency Theory, which was held in Beijing, China, on September 4–7, 2018. CONCUR 2018 was organised by the Institute of Software, Chinese Academy of Sciences.

CONCUR is a forum for the development and dissemination of leading research in concurrency theory and its applications. Its aim is to bring together researchers, developers, and students to exchange and discuss latest theoretical developments and learn about challenging practical problems. CONCUR is the reference annual event for researchers in the field.

The principal topics include basic models of concurrency such as abstract machines, domain-theoretic models, game-theoretic models, process algebras, graph transformation systems, Petri nets, hybrid systems, mobile and collaborative systems, probabilistic systems, real-time systems, biology-inspired systems, and synchronous systems; logics for concurrency such as modal logics, probabilistic and stochastic logics, temporal logics, and resource logics; verification and analysis techniques for concurrent systems such as abstract interpretation, atomicity checking, model checking, race detection, pre-order and equivalence checking, run-time verification, state-space exploration, static analysis, synthesis, testing, theorem proving, type systems, and security analysis; distributed algorithms and data structures: design, analysis, complexity, correctness, fault tolerance, reliability, availability, consistency, self-organisation, self-stabilisation, protocols. The theoretical foundations of more applied topics like architectures, execution environments, and software development for concurrent systems such as geo-replicated systems, communication networks, multiprocessor and multi-core architectures, shared and transactional memory, resource management and awareness, compilers and tools for concurrent programming, programming models such as component-based, object- and service-oriented can also be found at CONCUR.

This edition of the conference attracted 101 full paper submissions, and we thank the authors for their interest in CONCUR 2018. After careful reviewing and discussions, the Program Committee selected 37 papers for presentation at the conference. Each submission was reviewed by at least three reviewers who wrote detailed evaluations and gave insightful comments. We warmly thank the members of the Program Committee and the additional reviewers for their excellent work, including the constructive discussions. The full list of reviewers is available as part of these proceedings.

The conference programme was greatly enriched by the invited talks by Moshe Vardi, Yuxin Deng, Rob van Glabbeek, and Bow-Yaw Wang, as well as the tutorial delivered by Ichiro Hasuo. We thank the speakers for having accepted our invitation and their excellent presentations.

This year, the conference was jointly organised with the 16th International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS), the 15th International Conference on Quantitative Evaluation of SysTems (QEST), and the fourth Symposium on Dependable Software Engineering (SETTA) in an overarching event, CONFESTA, organised by the Institute of Software, Chinese Academy of Sciences.

CONFESTA included four more satellite events: the combined 25th International Workshop on Expressiveness in Concurrency and 15th Workshop on Structural Operational Semantics (EXPRESS/SOS), the 3rd International workshop on Timing Performance engineering for Safety critical systems (TIPS'18), the 7th IFIP WG 1.8 Workshop on Trends in Concurrency Theory (TRENDS), and the 8th Young Researchers Workshop on Concurrency

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Theory (YR-CONCUR). as well as a number of tutorials. CONFESTA was preceded by two further associated events, a Summer School on Formal Methods and a CAP Project Workshop.

The CONCUR proceedings are available for open access via LIPIcs, and we thank the staff from Schloss Dagstuhl, in particular Michael Wagner, for helping us with the preparation. Last, but not least, we thank the authors and the participants for making this year's CONCUR a successful and inspiring event.

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