

PROCEEDINGS

**17th International Conference
on Application of Concurrency
to System Design**

— ACSD 2017 —

**25–30 June 2017
Zaragoza, Spain**

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Los Alamitos, California
Washington • Tokyo



17th International Conference on Application of Concurrency to System Design

ACSD 2017

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Message from the ACSD 2017 Program Chairs

This volume contains the proceedings of ACSD 2017, the 17th International Conference on Application of Concurrency to System Design, organized in Zaragoza, Spain, in June 2017. The ACSD conferences have been organized as a yearly meeting since 2003, and actually started in 1998 with the first edition of the conference. Previous editions of the conference took place at the following locations:

16. ACSD 2016: Toruń, Poland by J. Desel and A. Yakovlev
15. ACSD 2015: Brussels, Belgium by S. Haar and R. Meyer
14. ACSD 2014: Tunis La Marsa, Tunisia by A. Mokhov and L. Bernardinello
13. ACSD 2013: Barcelona, Spain by J. Carmona, M. T. Lazarescu, and M. Pietkiewicz-Koutny
12. ACSD 2012: Hamburg, Germany by J. Brandt and K. Heljanko
11. ACSD 2011: Newcastle Upon Tyne, UK by B. Caillaud, J. Carmona, and K. Hiraishi
10. ACSD 2010: Braga, Portugal by L. Gomes, V. Khomenko, and J. M. Fernandes
9. ACSD 2009: Augsburg, Germany by S. Edwards, R. Lorenz, and W. Vogler
8. ACSD 2008: Xi'an, China by J. Billington, Z. Duan, and M. Koutny
7. ACSD 2007: Bratislava, Slovak Republic by T. Basten, G. Juhás, and S. K. Shukla
6. ACSD 2006: Turku, Finland by K. Goossens and L. Petrucci
5. ACSD 2005: St. Malo, France by B. Caillaud, J. Desel, and Y. Watanabe
4. ACSD 2004: Hamilton, Ontario, Canada by M. Kishinevsky and P. Darondeau
3. ACSD 2003: Guimaraes, Portugal
2. ACSD 2001: Newcastle upon Tyne, UK
1. ACSD 1998: Fukushima, Japan

The ACSD meetings serve as a forum for disseminating theoretical results and advanced methods and tools for the design of complex concurrent systems. The aim of the conference is to bring theory and practice closer together by informing practitioners about the latest theoretical results, and challenging theoreticians with complex practical problems. A global view on system design, where concurrency is pervasive, but may take different forms at different levels, is needed to appraise and compare the contributions of theories, methods, and tools that deal with concurrency at all levels of design. The conference welcomes contributions from formal methods, computational design principles, synchronous and asynchronous forms of concurrency, cyber-physical systems, message-passing and shared memory concurrency as well as case studies and tool presentations in these areas.

This year, ACSD will be held in Zaragoza, Spain, keeping the tradition to be organized in conjunction with the International Conference on Application and Theory of Petri Nets and Other Models of Concurrency (Petri Nets 2017). Both conferences share a set of keynotes on interesting topics by Thomas A. Henzinger, Josep Carmona, Bernhard Steffen, Irina A. Lomazova, and Christos G. Cassandras. The 15 accepted papers are organized in sessions on Verification of Timed Systems, Compositional Verification, Asynchronous Systems, Circuit Analysis, Models of Concurrency, Scheduling of Concurrent Systems, and Shared Memory Concurrency.

We are grateful to the many authors who have submitted their work to be presented at the conference. Also, we would like to thank the program committee for the effort to carefully review each submission with at least three reviews. The steering committee, in particular, Alex Yakovlev, was an invaluable help during the organization of the conference, and the chair of the local organization committee, José Manuel Colom, provided endless work keeping all web pages consistent, to schedule all contributions into a working conference program, and to organize the events around the scientific program. Finally, we also wish to thank the people providing us with the EasyChair conference management system, and Randall Bilof from IEEE CPS for his help with this proceedings volume.

Axel Legay and Klaus Schneider

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