

## Computability in Europe 2009

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The six papers in this special issue arose from the conference CiE 2009: Mathematical Theory and Computational Practice, held at the Ruprecht-Karls-Universität Heidelberg, Germany, in July 2009. CiE 2009 was the fifth meeting in the series of conferences associated with the *Association for Computability in Europe*.



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The conferences had been organized by an informal network of European scientists from 2005 onwards. At the conference CiE 2008 in Athens, this network decided to give itself a more formal structure by founding the *Association for Computability in Europe*. The conference in Heidelberg was the first conference after this important step for our community. The main aim of the association is to promote the development, particularly in Europe, of computability-related science, ranging over mathematics, computer science, and applications in various natural and engineering sciences such as physics and biology, including the promotion of the study of philosophy and history of computing as it relates to questions of computability.

CiE 2009 aimed at bridging the gap from the theoretical methods of mathematical and meta-mathematical flavor to the applied and industrial questions of computational practice. The conference brought together computer scientists, mathematicians, physicists, biologists, engineers, and explored the historical and philosophical foundations of the field.

As is usual in computer science, CiE 2009 had a regular pre-proceedings volume published in the book series *Lecture Notes in Computer Science*:

Klaus Ambos-Spies, Benedikt Löwe, and Wolfgang Merkle (Eds.), *Mathematical Theory and Computational Practice, Fifth Conference on Computability in Europe, CiE 2009, Heidelberg, Germany, July 2009, Proceedings, Heidelberg 2009* [Lecture Notes in Computer Science 5635].

As a follow-up to the conference, the organizers of CiE 2009 have also prepared post-conference publications. Three special issues of journals are being edited with journal versions of talks and presentations at CiE 2009. Our publication policy does not allow double publications of the same research content: in order to get accepted for a post-proceedings special issue, a journal version of a talk must exhibit unpublished research content beyond the content printed in the LNCS volume.

This special issue of the journal *Theory of Computing Systems* is one of the post-conference publications. The special issue underwent a thorough and strict refereeing process. After CiE 2009, we invited eleven authors to submit a journal version of their paper to this special issue; in the end, we accepted the six papers that the reader can find in this issue.

The selection procedure was the work of many referees who put in a lot of work to ascertain the quality of the special issue. The paper by Jean Cardinal, Samuel Fiorini and Gwenaél Joret represents the special session on *Optimization and Approximation* (organized by Magnús M. Halldórsson and Gerhard Reinelt) at CiE 2009. The remaining five papers are full versions of contributed talks; three of those (by Case and Moellius, by Dantchev and Martin, and by Gärtner and Hotz) have a short version published in the mentioned LNCS pre-proceedings volume.

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For the most current information about the conference series CiE-CS, we refer the reader to our web-page <http://www.ilc.uva.nl/CiE/>.

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