

## **Eighth ASPOCP International Workshop on “Answer Set Programming and Other Computing Paradigms”**

### **Preface**

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Answer Set Programming (ASP) is a logic programming, declarative, paradigm that was introduced in the late 1990s, based on the answer set semantics of logic programs proposed by Gelfond and Lifschitz a decade earlier. To date, ASP has been applied to a variety of domains and demonstrated its suitability for solving reasoning tasks such as knowledge-intensive tasks and combinatorial search problems. One direction of ASP research focuses on the development of efficient methods for computing answer sets. Novel techniques were initially adapted from SAT, then designed on purpose for ASP, e.g. to deal with specific ASP constructs, like aggregates, or to solve different reasoning tasks, such as cautious reasoning. More recently, ideas have been derived from the study of the relationship between ASP and other computing paradigms, such as constraint satisfaction, quantified Boolean formulas, first-order logic, pseudo-Boolean solvers, theorem provers, description logics, and external means of computation. The goal of this direction is to be able to cope more efficiently with practical problems, and to extend the domains that can be modeled and solved via ASP and its extensions. A recent, successful direction is CASP, which integrates ASP and constraint programming to solve problems with mixed discrete-continuous dynamics.

The Answer Set Programming and Other Computing Paradigms (ASPOCP) series of workshops aims at fostering the cross-fertilization between ASP and other approaches by providing a venue for discussing advances in theory, solving techniques, and applications. Furthermore, the workshop encourages research that crosses the boundaries of ASP in other original directions, including action languages, probabilistic reasoning and machine learning, multi-agent and multi-context systems, argumentation frameworks and modularity.

The ASPOCP workshop series has been held annually since its first edition in 2008 as a co-located event with the International Conference on Logic Programming (ICLP). The workshop has become an established event, as demonstrated by the considerable number of submissions and participants at each edition.

The eighth edition of the workshop (ASPOCP 2015<sup>1</sup>) was held in Cork, Ireland, on August 31st, 2015, as an affiliated event of the 31st ICLP meeting, which was part of “The Year of George Boole.” Eleven papers were presented and the authors were invited to submit extended versions to be con-

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<sup>1</sup><https://sites.google.com/site/aspocp2015>

sidered for publication in the current special issue. Seven papers were submitted for consideration. After a second round of reviews, in which both members of the workshop program committee and new referees were involved, five submissions were accepted.

The papers in these Proceedings represent a wide panorama of current issues in ASP. Abseher et al. provide an ASP solution to the problem of finding optimal assignments of employees to shifts, by collecting as by product a benchmark of valuable instances for the development of ASP-based optimization methods. Bliem et al. describe a novel method for designing dynamic programming (DP) algorithms based on recurring patterns and principles, and present a system that allows for the specification of DP algorithms in ASP. Bomanson et al. introduce an extension of ASP with acyclicity constraints and present an efficient implementation of the new formalism. Fandinno extends logic programs under stable model semantics and action language  $\mathcal{BC}$  with causal literals useful in determining the causal justifications of other atoms. Zhang et al. introduce an extension of ASP with an operator for representing proportions of beliefs, provide an algorithm for computing answer sets of this extension, and demonstrate the use of the new language to model several problems.

We warmly thank the authors that submitted papers for having considered this special issue, and acknowledge the high quality of their submissions. We express our gratitude towards the members of the workshop program committee and the external referees for their hard work on preparing informative reviews, which provided valuable suggestions to the authors.

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## External Referees

Mario Alviano, University of Calabria, Italy;  
 Mehul Bhatt, University of Bremen, Germany;  
 Carmine Dodaro, University of Calabria, Italy;  
 Francesco Scarcello, University of Calabria, Italy;  
 Peter Schüller, Marmara University, Turkey;  
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 Przemysław Andrzej Wałęga, University of Warsaw, Poland.

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