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Applications and Theory of Petri Nets and Other Models of Concurrency, 2011

Preface

This special issue is dedicated to selected papers from the 32nd International Conference on Applications and Theory of Petri Nets and Other Models of Concurrency, which took place in June 2011 in Newcastle upon Tyne, UK. In a careful reviewing process, 17 regular contributions have been accepted for presentation at the conference among 49 submissions. Then, after the conference, a collection of papers published in the proceedings was selected with the help of the Program Committee members, and the authors were invited to revise and extend their contributions for this special issue. Next, the extended submissions have been examined in another independent reviewing process involving two review rounds to meet the standards of FUNDAMENTA INFORMATICAE. Finally, six contributions have been accepted for publication. The accepted papers give a good overview of some recent developments in the area of Petri nets and other models of concurrency.

The article "Minimal Coverability Set for Petri Nets: Karp and Miller Algorithm with Pruning" by Pierre-Alain Reynier and Frédéric Servais presents an improved algorithm for computing minimal coverability sets of Petri nets and evaluate experimentally that the new algorithm significantly improves the existing Karp-Miller algorithm. The paper "Branching processes of general Petri Nets" by Jean-Michel Couvreur, Denis Poitrenaud, and Pascal Weil proposes faithful branching processes as a new framework for extending branching processes to general Petri nets without finiteness or safeness assumptions. The article "Refinement of Synchronizable Places with Multi-workflow Nets" by Kees M. van Hee, Natalia Sidorova, and Jan Martijn van der Werf presents a step-wise refinement strategy for workflow nets that preserves weak termination. In the paper, "A Petri Net Interpretation of Open Reconfigurable Systems" Frédéric Peschanski, Hanna Klaudel, and Raymond Devillers present a syntax-oriented translation from pi-graphs (a variant of the pi-calculus) to one-safe coloured Petri nets thereby accommodating for the transfer of pi-graph results into a Petri net context. In their paper entitled "Mutex Causality in Processes and Traces of General Elementary Nets", Jetty Kleijn and Maciej Koutny establish a link between elementary net systems and trace theory allowing one to discuss different observations of concurrent behaviour. The paper "Synthesis and Analysis of Product-form Petri Nets" by Serge Hadded, Jean Mairesse, and H.-T. Nguyen provides sound and complete generating rules for a subclass of product-

form Petri nets, establishes complexity result for liveness and reachablity, and proposes a new subclass for product-form Petri nets. This paper received the ”Outstanding Paper” award at the conference.

We would like to thank the authors of the papers of this issue for their efforts to extend and revise their contributions. We are also grateful to all the reviewers who have given numerous valuable suggestions to the authors. Finally, we would like to thank Damian Niwiński for giving us the opportunity to publish this issue.

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