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Preface

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## Preface

PNGT 2010 is the fourth workshop of a series that serves as a forum for all researchers and practitioners interested in an exchange of ideas, notions, techniques between the fields of Petri nets and graph transformations, two prominent specification formalisms of concurrent and distributed systems. It belongs to the folklore that Petri nets can be seen as rewriting systems over (multi)sets, the rewriting rules being the transitions, and, as such they can be seen as special graph transformation systems. This close correspondence between the two models has naturally led to a mutual influence. For instance, several approaches to the concurrent semantics of graph transformation systems as well as techniques for their analysis and verification are strongly influenced by the corresponding theories and constructions for Petri nets.

Classical Petri net models have been integrated with graph transformation systems, e.g., in order to define rule-based changes in the net structure. This serves both for a stepwise refinement of Petri net models or for the specification of dynamically reconfiguring nets. Interesting connections exist with extensions of Petri net models with dynamic topologies, or with notions of Petri net module or component. Graph transformation systems are also used for the development, the simulation, or animation of various types of Petri nets, e.g., via the the definition of visual languages and environments.

PNGT 2010 balances theoretical and applied concepts. The workshop continues the research on reconfigurable Petri nets, and the selected papers published in this ECEASST volume establish interesting connections between Petri nets and graph transformation systems and tools, as well as between different classes of algebraic higher order systems. Suitable concepts focus on extensions to model especially highly dynamic structures and complex behavior in the area of communication platforms in an adequate way and on net patterns to simplify the complicated task of rule application. Moreover a promising technique for state space exploration is presented to increase the efficiency by identifying a feasible execution path of a graph transformation system corresponding to a given occurrence vector.

We thank all reviewers who were involved in the review process and had their share in improving the papers for this PNGT volume of ECEASST.

Claudia Ermel,  
Kathrin Hoffmann

(Guest Editors of PNGT 2010)



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