Proceedings of the
5th International Workshop on Petri Nets,
Graph Transformation and other Concurrency Formalisms
(PNGT 2012)

Preface

2 pages

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PNGT (Petri Nets, Graph Transformation and other Concurrency Formalisms) is a series of workshops taking place every two years. It serves as a forum for all researchers and practitioners interested in an exchange of ideas, notions, techniques between the fields of Petri nets, graph transformation and other specification formalisms of concurrent and distributed systems. This volume contains the proceedings of the fifth workshop PNGT 2012 that was held as Satellite Event of the Sixth International Conference on Graph Transformation and took place on September, 29 2012 in Bremen, Germany. Previous PNGT workshops took place in Enschede, The Netherlands in 2010, in Leicester, UK in 2008, in Natal, Brazil in 2006 and in Rome, Italy in 2004.

The increasing interest combining concepts of process algebra with those of graph transformation systems has lead to the broadening of this workshop's scope. The focus is now on general frameworks in which one can specify and reason about concurrent and distributed systems and their relation and combination with graph transformations. There are many areas where these theories overlap and this reaches much further than just using graphs to give a graphic representation to processes. The combination of both can lead to a better understanding, e.g. for process analysis or abstract semantics of distributed systems. The mutual transfer of concepts and techniques benefits both areas, examples are compositionality or bisimulation congruences for graph transformation as enjoyed by process algebras or graphical implementation for processes.

The traditional topic – the mutual influence of Petri nets and graph transformations – remains in the workshop's focus. 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 Petri nets.

The topics of the papers balance theoretical and applied concepts. They range from the extension of a categorical framework to transfer essential properties, advanced results for the process evolution of communication platforms, the necessary theory of an abstract interleaving semantics, the technique of time optimal trajectory in a graph transformation systems with time to a large case study to model the communication in ubiquitous computing systems. Additionally there has been the inspiring invited lecture by Barbara König on Conditional Reactive Systems. The abstract also has been included into the proceedings.

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Last but not least thanks to the authors without their contributions there would have been no workshop.

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- Karsten Gabriel
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