

Editors: Michael Duvigneau and  
Daniel Moldt and  
Kunihiko Hiraishi

Proceedings of the  
International Workshop on

**P**etri  
**N**ets and  
**S**oftware  
**E**ngineering  
**PNSE'11**

University of Hamburg  
Department of Informatics

These proceedings are published online with CEUR Workshop Proceedings (<http://CEUR-ws.org/>, ISSN 1613-0073) as Volume 723. Copyright for the individual papers is held by the papers' authors. Copying is permitted only for private and academic purposes. This volume is published and copyrighted by its editors.

## Preface

These are the proceedings of the International Workshop on *Petri Nets and Software Engineering* (PNSE'11) in Newcastle upon Tyne, United Kingdom, June 20–21, 2011. It is a co-located event of *Petri Nets 2011*, the 32nd international conference on Applications and Theory of Petri Nets and Concurrency, and *ACSD 2011*, the 11th International Conference on Application of Concurrency to System Design.

More information about the workshop can be found at

<http://www.informatik.uni-hamburg.de/TGI/events/pnse11/>

For the successful realisation of complex systems of interacting and reactive software and hardware components the use of a precise language at different stages of the development process is of crucial importance. Petri nets are becoming increasingly popular in this area, as they provide a uniform language supporting the tasks of modelling, validation, and verification. Their popularity is due to the fact that Petri nets capture fundamental aspects of causality, concurrency and choice in a natural and mathematically precise way without compromising readability.

The use of Petri nets (P/T-nets, coloured Petri nets and extensions) in the formal process of software engineering, covering modelling, validation, and verification, is presented as well as their application and tools supporting the disciplines mentioned above.

The program committee consists of:

Kamel Barkaoui (France)  
Piotr Chrzastowski-Wachtel (Poland)  
José-Manuel Colom (Spain)  
Michael Duvigneau (Germany) (Chair)  
Giuliana Franceschinis (Italy)  
Guy Gallasch (Australia)  
Xudong He (USA)  
Kunihiko Hiraishi (Japan) (Chair)  
Gabriel Juhás (Slovakia)  
Peter Kemper (USA)  
Astrid Kiehn (India)  
Hanna Kludel (France)  
Lars Kristensen (Norway)  
ZhiWu Li (China)  
Robert Lorenz (Germany)  
Daniel Moldt (Germany) (Chair)  
Atsushi Ohta (Japan)  
Wojciech Penczek (Poland)

Laure Petrucci (France)  
Lucia Pomello (Italy)  
Yann Thierry-Mieg (France)  
Naoshi Uchihira (Japan)  
H.M.W. (Eric) Verbeek (Netherlands)  
Manuel Wimmer (Austria)  
Karsten Wolf (Germany)  
Shingo Yamaguchi (Japan)  
Satoshi Yamane (Japan)

We received 18 high-quality contributions. The program committee has accepted five of them for full presentation. Furthermore the committee accepted six papers as short presentations. Two contributions were submitted and accepted as posters.

The international program committee was supported by the valued work of Luca Bernardinello, Kent Inge Fagerland Simonsen, Elisabetta Mangioni, Artur Meški, Maciej Szreter, and Samir Tata as additional reviewers. Their work is highly appreciated.

Furthermore, we would like to thank the organizational teams of the Japan Advanced Institute of Science and Technology, Kanazawa, Japan and the University of Newcastle, Newcastle upon Tyne, U.K., for their general organizational support.

Without the enormous efforts of authors, reviewers, PC members and the organizational teams this workshop wouldn't provide such an interesting booklet.

Thanks!

Michael Duvigneau, Daniel Moldt, and Kunihiko Hiraishi  
Newcastle, June 2011

---

## Contents

---

### Part I Invited Talks

---

- Unfolding Models of Asynchronous Systems: Applications to Analysis and Synthesis**  
*Victor Khomenko* ..... 9
- Design, Modelling and Analysis of a Workflow Reconfiguration**  
*Manuel Mazzara, Faisal Abouzaid, Nicola Dragon and Anirban Bhattacharyya* ..... 10

---

### Part II Long Presentations

---

- Efficient Implementation of Prioritized Transitions for High-level Petri Nets**  
*Michael Westergaard and H.M.W. (Eric) Verbeek* ..... 27
- Modelling Local and Global Behaviour: Petri Nets and Event Coordination**  
*Ekkart Kindler* ..... 42
- Towards Verifying Parallel Algorithms and Programs using Coloured Petri Nets**  
*Michael Westergaard* ..... 57
- Bounded Model Checking Approaches for Verification of Distributed Time Petri Nets**  
*Artur Męski, Agata Pótróla, Wojciech Penczek, Bożena Woźna-Szcześniak and Andrzej Zbrzezny* ..... 72
- Extending PNML Scope: the Prioritised Petri Nets Experience**  
*Lom-Messan Hillah, Fabrice Kordon, Charles Lakos and Laure Petrucci* . 92

---

**Part III Short Presentations**


---

**Specialisation and Generalisation of Processes**

*Christine Choppy, Jörg Desel and Laure Petrucci* ..... 109

**Integrating Verification into the PAOSE Approach**

*Marcin Hewelt, Thomas Wagner and Lawrence Cabac*..... 124

**Transitions as Transactions**

*Shengyuan Wang, Weiyi Wu, Yao Zhang and Yuan Dong* ..... 136

**A Component Framework where Port Compatibility Implies Weak Termination**

*Debjyoti Bera, Kees M. van Hee, Michiel van Osch and Jan Martijn van der Werf* ..... 152

**Improving the Development Tool Chain in the Context of Petri Net-Based Software Development**

*Tobias Betz, Lawrence Cabac and Matthias Güttler* ..... 167

**On the use of Pragmatics for Model-based Development of Protocol Software**

*Kent Inge Fagerland Simonsen* ..... 179

---

**Part IV Poster Abstracts****A Goal Based Approach on top of Petri Nets**

*Nejm Saadallah and Benoit Daireaux* ..... 193

**PNTM – Integration of Petri Nets and Transactional Memory**

*Weiyi Wu, Yao Zhang, Shengyuan Wang and Yuan Dong* ..... 196