

# Five years of modeling in SoSyM

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The limits of my language are the limits of my world  
(Wittgenstein)

Since its inception in 2002 the International Journal on Software and Systems Modeling (SoSyM) has become a major source of quality papers describing research and experience related to building and using models in the development of software-based systems. Papers published in SoSyM cover many aspects of software development; from early business requirements modeling and analysis through system architecting to quality management, maintenance and evolution of software. However, in practice, models are primarily used in two ways: as informal descriptions of concepts to facilitate discussion (e.g., using the UML as a sketching notation), and as bases for generating code (e.g., generating code using model frameworks). Research on model-driven development (MDD) indicates that models can be better leveraged during development. However, there is a need to perform more foundational research and empirical studies to fully understand how the MDD vision of software development can be realized. The journal will continue to play a vital role in nurturing and advancing high quality research in MDD through the publication of results from high quality empirical studies, and of successful or highly promising approaches that address various aspects of MDD.

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We sincerely thank the authors, reviewers, and editors who have contributed to the success of the journal. As we have done on previous anniversaries, we take this opportunity to give a “state of the journal” report and to acknowledge the reviewers, editors, and publication staff that have contributed to another very good year of publication.

## The 2006 “State of the Journal” report

The number of institutional subscribers for the paper version of the journal is increasing steadily. On-line access significantly increased in the past year to between 800 and 1,500 downloads/month. In this respect, SoSyM is exceeding initial subscription estimates.

The average number of days from submission to final decision has improved from an average of 6 months in 2005 to an average of 4 months in 2005/2006. We thank our editors and reviewers for their effort in this respect. We have also seen a steady increase in the number of submissions to the journal.

In the past year we were able to extend the editorial board with the following editors:

- Perry Alexander, University of Kansas, USA
- Martin Glinz, University of Zurich, Switzerland
- Hassan Gomaa, George Mason University, USA
- Sébastien Gérard, CEA, France
- Robyn Lutz, Iowa State University/JPL, USA

Forty six (46) special issue papers and thirty five (35) regular papers have been published thus far in SoSyM. A total of two hundred and thirty one (231) authors have papers published in SoSyM.

The good reputation that the journal enjoys is a direct result of the effort and expertise of the editors and reviewers. Below we list the reviewers (excluding members of the editorial board) who reviewed one or more papers for the journal in the last year. A complete list of reviewers that includes editors can be found on our website <http://www.sosym.org/>.

Alan S. Koch  
 Albert Zündorf  
 Alexander Egyed  
 Alexander Pretschner  
 Alexander Wißpeintner  
 Alexey Cherchago  
 Alfonso Pierantonio  
 Ambrosio Toval  
 Andrea Corradini  
 Andrea Zisman  
 Andreas L. Opdahl  
 Andreas Martin  
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 Christian Seel  
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 Claude Jard  
 Claudia Ermel  
 Colin Atkinson  
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Dae-Kyoo Kim  
 Dan Turk  
 Daniel Varro  
 David von Oheimb  
 Dimitra Giannakopoulou  
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 Emanuel S. Grant  
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 Francky Trichet  
 Francois Terrier  
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 Gabriele Taentzer  
 Gail Murphy  
 Gerd Beneken  
 Gerhard Popp  
 Gerson Sunyé  
 Giancarlo Guizzardi  
 Giovanni Squillero  
 Giuliano Antoniol  
 Gopal Raghavan  
 Gordon Blair  
 Greg Eisenhauer  
 Gregor Kiczales  
 Guenter Boeckle  
 Guido Wimmel  
 Gustavo Rossi  
 Guy Genilloud  
 Hany Ammar  
 Heike Wehrheim  
 Heinrich Herre  
 Helen Eleri Treharne  
 Helen Sharp  
 Holger Giese  
 Hong Mei  
 Hubert Baumeister  
 Ileana Ober  
 Iman Hafiz Poernomo  
 Ina Schieferdecker  
 Ivan Kurtev  
 Ivan Porres  
 Jacqueline Floch  
 Jakob Axelsson  
 Jan Aagedal  
 Jan Brederecke

Jan Hendrik Hausmann  
Jan Jürjens  
Jan Romberg  
Jan Willems  
Janette Cardoso  
Javier Esparza  
Jeanine Souquieres  
Jean-Marie Favre  
Jean-Philippe Babau  
Jeff Gray  
Jerome Delatour  
Jewgenij Botaschanjan  
Jia Zhang  
Jidtima Sunkhamani  
Jim Steel  
Joanne Bechta Dugan  
Joao Araujo  
Joaquin Lasheras  
Joel Champeau  
Johann Schumann  
Johannes Gruenbauer  
Jon Favaro  
Jon Hall  
Jorge Fox  
Jose Luiz Fiadeiro  
Jose Ramon Hoyos  
Julio Luis Medina  
Jun Sun  
Jun Suzuki  
Katrina Leyking  
Ketil Stolen  
Kevin P. Tyson  
Krzysztof Czarnecki  
Kuldar Taveter  
Kurt Lautenbach  
Kyo Kang  
Laurence Tratt  
Laurent Gallon  
Leila Kloul  
Leo Kof  
Leon Starr  
Lidia Fuentes  
Lucia Rapanotti  
Luciano Baresi  
Ludovic Apvrille  
Luigi Lavazza  
Luiz Capretz  
Luiz Cysneiros  
M. de Miguel  
Manuel Koch  
Marcello Bonsangue  
Marina Waldén  
Mark David Schulte  
Mark Minas  
Mark Utting  
Marko Boger  
Martin Deubler  
Martin Rappl  
Martin Schindler  
Martin Steffen  
Martin Strecker  
Mass Soldal Lund  
Matthias Riebisch  
Mauro Pezze  
Michael Meisinger  
Michaela Huhn  
Michelle L. Crane  
Monika Maidl  
Morgan Bjorkander  
Nabil Hameurlain  
Nazareno Aguirre  
Nicola Guarino  
Nicolas Belloir  
Olga De Troyer  
Omar Aldawud  
Omar Boussaid  
Paolo Bottoni  
Pasha Shabalin  
Peter Braun  
Peter Buchholz  
Peter H. Schmitt  
Piotr Kosiuczenko  
Pramod Gupta  
R. Venkatesh  
Radu Iosif  
Radu Mateescu  
Raghu Reddy  
Ralf Reussner  
Reena Mathew  
Reiko Heckel  
Rich Hilliard  
Richard Atterer  
Richard Carver  
Richard Chbeir  
Richard Mitchell  
Richard Paige  
Robert Sandner  
Rodric Rabbah  
Ron Ritchey  
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 Vladimiro Sassone  
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 Weng-Fai Wong  
 Wilhelm Hasselbring  
 Wilhelm Schöfer  
 Yoram Atir  
 Zongyan Qiu

We take this opportunity to also thank the guest editors of this year's special sections.

Issue 2006/02 contains a special section on "Service-Based Software Engineering" from the ICSE 2003 Workshop edited by Manfred Broy and Bernhard Schätz, Munich University of Technology, Heinrich-Husmann, Ludwig-Maximilians University Munich, and Ingolf Krüger, University of California, San Diego.

Issue 2006/03 and this publication, Issue 2006/04, contains a special section of two events, the "Dagstuhl Seminar on Language Engineering for Model-Driven Software Development" and the "Workshop on Graph Transformation and Visual Modelling Techniques (GT-VMT) 2004", edited by Jean Bézivin, INRIA and University of Nantes, France, and Reiko Heckel, University of Leicester, UK.

We thank the publishing staff at Springer, namely:

Hermann Engesser, Gabriele Stjepanovic, Anita Bürk, Dorothea Glaunsinger, Elke Janosch and Wayne Yuhasz. They all provided significant assistance during the year. In particular, Hermann Engesser continued to provide us with indispensable assistance and advice on matters pertaining to the management of the journal.

Last but not least, we thank our assistant editors, namely Geri Georg who handles new submissions and monitors the review of regular papers, and Martin Schindler who handles special section papers and Expert papers and manages the publication process for all accepted papers.

The journal's reputation and quality is a direct result of the outstanding support provided by authors, reviewers, editors and the publishing staff. The publishers and editors have given every indication that they are committed to ensuring quality. We are confident that the journal will continue to play an important role in the dissemination of knowledge in the software-based system modeling community.

### Contents in this issue

This issue includes two special section papers and three regular papers.

The first two papers of the issue conclude the special section "Language Engineering for Model-Driven Software Development" started in Issue 2006/3 that was edited by Jean Bézivin and Reiko Heckel. These papers are discussed in the Editorial of that issue. The last of these two papers "**Matters of (meta-) modelling**" was written by *Thomas Kühne* and discusses a foundational approach to meta-modelling. The paper proposes a sound theoretical basis that can be used to develop useful tools for meta-modelling. This paper is followed by a discussion paper by *Wolfgang Hesse* titled "**More Matters on (Meta-) Modelling – Remarks on Thomas Kühne's 'matters'**" in which the author comments on the ideas presented in the paper "**Matters of (meta-) modelling**". A response by the author *Thomas Kühne* is also included in the issue. We chose to present the papers in this manner to encourage discussions in this area of study. Use and meaning of models depends, to some extent, on the background of the modeler and on the form of problem to be solved. Publishing papers that discuss other papers and author responses can help readers better understand motivations underlying proposed approaches and encourage other authors to write responses to papers published in SoSyM or its online first version. We do review discussion papers and responses for soundness, but they need not be self contained and thus are reviewed using more liberal criteria.

The second part of this issue contains three regular papers. The regular paper “**Integration of DFDs into a UML-based Model-Driven Engineering Approach**” by *João Miguel Fernandes, Johan Lilius* and *Dragos Truscan* presents an approach in which the functional and the object-oriented modeling perspectives for embedded systems can be combined. In modeling complex systems, it is important to describe systems from several perspectives. Thus an integrated view of these two modeling perspectives can serve a useful purpose. The authors also embed their approach in a model-driven engineering process with tool support.

The second regular paper “**UML Specification of Access Control Policies and their Formal Verification**” by *Manuel Koch* and *Francesco Parisi-Presicce* proposes a methodology to integrate access control policies into UML class and object diagrams. The approach utilizes existing UML models and extension mechanisms to ensure compatibility with UML tools. Access control

is an important security concern that should be considered and modeled during the early stages of development. The authors use graph-based semantics for the access control specification in UML as formal basis for the analysis of the policy specification and for the verification of its coherence.

In the regular paper “**TURTLE-P: a UML Profile for the Formal Validation of Critical and Distributed Systems**” by *Ludovic Apvrille, Pierre de Saqui-Sannes* and *Ferhat Khendek*, a development methodology covering requirement analysis, design and deployment phases is proposed. During each of these phases, formal verification techniques can be applied to appropriate UML diagrams.

We hope you enjoy reading the articles in this issue.

Robert France, Bernhard Rumpe  
Editors in Chief