

Table of Contents

Invited Papers

Improving Flow in Software Development Through Graphical Representations	1
<i>Margaret-Anne D. Storey</i>	
A Perspective on Graphs and Access Control Models	2
<i>Ravi Sandhu</i>	
Transformation Language Design: A Metamodelling Foundation	13
<i>Tony Clark, Andy Evans, Paul Sammut, and James Willans</i>	

Integration Technology

Rule Execution in Graph-Based Incremental Interactive Integration Tools	22
<i>Simon M. Becker, Sebastian Lohmann, and Bernhard Westfechtel</i>	
Composition of Relations in Enterprise Architecture Models	39
<i>René van Buuren, Henk Jonkers, Maria-Eugenia Iacob, and Patrick Strating</i>	
Event-Driven Grammars: Towards the Integration of Meta-modelling and Graph Transformation	54
<i>Esther Guerra and Juan de Lara</i>	

Chemistry and Biology

Analysis of Metabolic Pathways by Graph Transformation	70
<i>Francesc Rosselló and Gabriel Valiente</i>	
The Potential of a Chemical Graph Transformation System	83
<i>Maneesh K. Yadav, Brian P. Kelley, and Steven M. Silverman</i>	

Graph Transformation Concepts

Concepts for Specifying Complex Graph Transformation Systems	96
<i>Boris Böhlen and Ulrike Ranger</i>	
Typing of Graph Transformation Units	112
<i>Renate Klempien-Hinrichs, Hans-Jörg Kreowski, and Sabine Kuske</i>	

Towards Graph Programs for Graph Algorithms 128
Detlef Plump and Sandra Steinert

DPO Theory for High-Level Structures

Adhesive High-Level Replacement Categories and Systems 144
Hartmut Ehrig, Annegret Habel, Julia Padberg, and Ulrike Prange

Fundamental Theory for Typed Attributed Graph Transformation 161
Hartmut Ehrig, Ulrike Prange, and Gabriele Taentzer

Parallel Independence in Hierarchical Graph Transformation 178
Annegret Habel and Berthold Hoffmann

Analysis and Testing

Generating Test Cases for Code Generators
by Unfolding Graph Transformation Systems 194
Paolo Baldan, Barbara König, and Ingo Stürmer

Stochastic Graph Transformation Systems 210
Reiko Heckel, Georgios Lajios, and Sebastian Menge

Model Checking Graph Transformations:
A Comparison of Two Approaches 226
Arend Rensink, Ákos Schmidt, and Dániel Varró

Graph Theory and Algorithms

Election, Naming and Cellular Edge Local Computations 242
Jérémie Chalopin, Yves Métivier, and Wiesław Zielonka

Embedding in Switching Classes with Skew Gains 257
*Andrzej Ehrenfeucht, Jurriaan Hage, Tero Harju,
and Grzegorz Rozenberg*

Synchronizers for Local Computations 271
Yves Métivier, Mohamed Mosbah, Rodrigue Ossamy, and Afif Sellami

Application Conditions and Logic

Constraints and Application Conditions:
From Graphs to High-Level Structures 287
*Hartmut Ehrig, Karsten Ehrig, Annegret Habel,
and Karl-Heinz Pennemann*

Specification Matching of Web Services Using Conditional Graph Transformation Rules	304
<i>Alexey Cherkhago and Reiko Heckel</i>	

Representing First-Order Logic Using Graphs	319
<i>Arend Rensink</i>	

Transformation of Special Structures

Coproduct Transformations on Lattices of Closed Partial Orders	336
<i>Gemma Casas-Garriga and José L. Balcázar</i>	

Parsing String Generating Hypergraph Grammars	352
<i>Sebastian Seifert and Ingrid Fischer</i>	

Composition of Path Transductions	368
<i>Tanguy Urvoy</i>	

Object-Orientation

Translating Java Code to Graph Transformation Systems	383
<i>Andrea Corradini, Fernando Luís Dotti, Luciana Foss, and Leila Ribeiro</i>	

Extending Graph Rewriting for Refactoring	399
<i>Niels Van Eetvelde and Dirk Janssens</i>	

Derivations in Object-Oriented Graph Grammars	416
<i>Ana Paula Lüdtke Ferreira and Leila Ribeiro</i>	

Tutorials and Workshops

Tutorial Introduction to Graph Transformation: A Software Engineering Perspective	431
<i>Luciano Baresi and Reiko Heckel</i>	

Tutorial on DNA Computing and Graph Transformation	434
<i>Tero Harju, Ion Petre, and Grzegorz Rozenberg</i>	

Workshop TERMGRAPH 2004	437
<i>Maribel Fernández</i>	

Workshop on Graph-Based Tools	439
<i>Tom Mens, Andy Schürr, and Gabriele Taentzer</i>	

Workshop on Petri Nets and Graph Transformations	442
<i>Hartmut Ehrig, Julia Padberg, and Grzegorz Rozenberg</i>	

Workshop on Software Evolution Through Transformations:
Model-Based vs. Implementation-Level Solutions 445
Reiko Heckel and Tom Mens

Workshop on Logic, Graph Transformations, Finite
and Infinite Structures 448
Bruno Courcelle and David Janin

Author Index 451