

Prof. Roberto Bruni

Afferenza Dipartimento di Informatica, Università di Pisa
Indirizzo Largo Bruno Pontecorvo n° 3, 56127 Pisa, Italy
Telefono +39 050 2212785
Fax +39 050 2212726
Email bruni@di.unipi.it
WWW <http://www.di.unipi.it/~bruni>

1. Dati Personali

Data e Luogo di Nascita 24 Novembre 1967, Livorno, Italia
Cittadinanza Italiana
Posizione Attuale **Professore II Fascia**
(**Idoneità Professore I Fascia** conseguita a Gennaio 2014)
Istruzione **Ph.D.** in Informatica (1999)
MSc in Scienze dell'Informazione (Laurea *cum laude*, 1993)
Lingue estere **Inglese** (buono); **Francese** e **Spagnolo** (elementare).

Interessi di Ricerca

Service-oriented computing; global computing; transazioni long-running e business process management; architetture software e progettazione model-driven; semantica di sistemi concorrenti e distribuiti; algebre di processi; sistemi di tipi sessione e comportamentali; reti di Petri; sistemi e logiche per la riscrittura di termini e di grafi; teoria della categorie applicata; specifiche algebriche e coalgebriche.

2. Carriera

Ruoli Ricoperti e Incarichi Istituzionali

2002–2011: Ricercatore presso Università di Pisa.

2013–2015: Membro della **Commissione Orientamento, Comunicazione e Rapporti Internazionali (OCRI)** del Dipartimento di Informatica dell'Università di Pisa.

2011–2012: Membro del **Comitato di Presidenza di Scienze MFN** dell'Università di Pisa.

2010–2011: Membro del **Consiglio del Centro Interdipartimentale per il Sistema Informatico dell'Area Umanistica (CISIAU)** dell'Università di Pisa.

2002–2010: Membro della **Commissione Progetti di Laurea** del Dipartimento di Informatica dell'Università di Pisa.

Contratti e Attività Scientifica — Estero

Gennaio 2004: Visiting Scholar presso la University of Illinois di Urbana-Champaign, USA.

Febbraio 2002–Ottobre 2002: Visiting Scholar presso la University of Illinois di Urbana-Champaign, USA, con **borsa di studio del C.N.R.** per ricerche nel campo della Scienza e Tecnologie dell'Informazione.

Giugno 1998–Luglio 1998: International Visitor presso il Computer Science Laboratory dello Stanford Research Institute (SRI) International di Menlo Park, California, USA.

Settembre 1997–Dicembre 1997: International Fellow presso il Computer Science Laboratory dello Stanford Research Institute (SRI) International di Menlo Park, California, USA.

Contratti e Attività Scientifica — Italia

Gennaio 2002–Settembre 2002: Contratto di **collaborazione** con l'Università di Pisa per lo *sviluppo di tecniche formali di specifica di sistemi distribuiti con mobilità*.

Ottobre 2001–Gennaio 2002: Contratto di **collaborazione** con l'Università di Pisa per lo *studio di costrutti per linguaggi network aware*.

Agosto 1999–Ottobre 2001: Titolare di **assegno di ricerca** sul tema *Informatica* presso l'Università di Pisa (rinnovato ad Agosto 2001).

Marzo 1999–Luglio 1999: Contratto di **collaborazione** con l'Università di Pisa per lo *studio di un sistema di tipi per l'analisi di sistemi reattivi e concorrenti*.

Aprile 1998–Settembre 1998: Contratto di **collaborazione** con l'Università di Pisa per lo *sviluppo di strategie computazionali nei sistemi di riscrittura*.

1987: **Borsa di studio** presso il Centro di Elaborazione Dati del Comune di Livorno.

3. Attività Didattica

Supervisione di Tesi

PhD: Supervisore di quattro tesi di dottorato:

- “Formal Specification, Verification and Analysis of Long-running Transactions” di Anne Kersten (**PhD**, IMT Altì Studi Lucca, 2013);
- “Graphs and Transformations in Software Design” di Liang Zhao (**PhD** congiunta tra Università di Pisa e Research and Training Centre of the United Nations University UNU-IIST in Macao, 2012);
- “Typing Services” di Leonardo Gaetano Mezzina (**PhD**, IMT Altì Studi Lucca, 2009);
- “Models and Languages for Global Computing Transactions” di Hernán Melgratti (**PhD**, Università di Pisa, 2005).

PhD: Valutatore Esterno di tre tesi di dottorato:

- “Modelling Architectures of Federated Identity Management Systems” di Hyder Ali Nizamani (**PhD**, University of Leicester, UK, 2012);
- “Declarative Debugging and Heterogeneous Verification in Maude” di Adrián Riesco Rodríguez (**PhD**, Universidad Complutense de Madrid, Spain, 2011);
- “A Formal Approach to Long-Running Transactions” di Cátia Raquel Jesus Vaz (**PhD**, Universidade Técnica de Lisboa, Portugal, 2010);

MSc: Supervisore di otto tesi specialistiche/magistrali:

- “Progettazione e sviluppo di un sistema per la gestione di log di eventi” di Francesco Santeramo (**MSc**, Università di Pisa, 2015);
- “Utilizzo di tecniche di process mining nel contesto del Tuscan Port Community System” di Gabriele Bocchi (**MSc**, Università di Pisa, 2014);
- “Studio e progettazione di processi operatori” di Lorenzo Soriano e Matteo Fulgeri (**MSc**, Università di Pisa, 2013);
- “Analysis and Optimization of Business Processes Based on Key Performance Indicators” di Thomas Trienbacher (**MSc**, Università di Pisa, 2013);
- “Analisi del processo di change management in Piaggio: tecniche di process mining affiancate ai controlli tradizionali” di Sara Ballini (**MSc**, Università di Pisa, 2012);
- “Analisi formale di transazioni long-running” di Giorgio Spagnolo (**MSc**, Università di Pisa, 2010);
- “JSAGA: API e ambiente di prototipizzazione per l'orchestrazione di transazioni long running in ambiente SOA” di Nicola Zappone (**MSc**, Università di Pisa, 2005);
- “Composizionalità di transazioni e servizi web nell'ambito della telefonia mobile” di Daniele Strollo (**MSc**, Università di Pisa, 2005).

BSc: Supervisore di un colloquio alla Scuola Normale Superiore in Pisa e **proponente/tutore accademico** di molteplici tirocini formativi.

- “Tipi per calcoli con mobilità” di Giovanni Viglietta (**colloquium in Informatica**, Scuola Normale Superiore di Pisa, 2005);

Corsi di Dottorato e Master

Aprile–Maggio 2011: Docente del corso *Formal Methods for Concurrent Systems* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h, corso congiunto col Prof. Rocco De Nicola).

Aprile–Maggio 2010: Docente del corso *Formal Methods for Concurrent Systems* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h, corso congiunto col Prof. Rocco De Nicola).

Giugno 2009: Docente del corso *Calcoli for Service-Oriented Computing* (9th Int. School on Formal Methods for the Design of Computer, Communication and Software Systems: Web Services, Bertinoro, durata 3h).

Aprile–Maggio 2009: Docente del corso *Formal Methods for Concurrent Systems* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h, corso congiunto col Prof. Rocco De Nicola).

Aprile–Maggio 2008: Docente del corso *Formal Methods for Concurrent Systems* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h, corso congiunto col Prof. Rocco De Nicola).

Maggio–Giugno 2006: Docente del corso *Process Algebras and Concurrent Systems* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h, corso congiunto col Prof. Rocco De Nicola).

Marzo–Aprile 2005: Docente del corso *Models and languages for Coordination and Orchestration* (Computer Science and Engineering, Istituto di Alti Studi IMT di Lucca, durata 20h).

Luglio 2003: Docente del corso *Formal Models for Distributed Negotiations* (ECI 2003 summer school, XVII Escuela de Ciencias Informaticas, Università di Buenos Aires, Argentina, durata 15h).

Corsi Universitari

A.A. 2015/16: Docente del corso *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU) e *Models of computation* (Laurea Magistrale in Informatica, Università di Pisa, 9 CFU).

A.A. 2014/15: Docente del corso *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU) e *Models of computation* (Laurea Magistrale in Informatica, Università di Pisa, 9 CFU).

A.A. 2013/14: Docente del corso *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU) e *Models of computation* (Laurea Magistrale in Informatica, Università di Pisa, 9 CFU).

A.A. 2012/13: Docente del corso *Laboratorio di Programmazione* (Laurea in Informatica Umanistica, Università di Pisa, 6 CFU) e *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU).

A.A. 2011/12: Docente del corso *Programmazione e Analisi dei Dati, Modulo A: Programmazione* (Laurea in Informatica Umanistica, Università di Pisa, 6 CFU) e *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU).

A.A. 2010/11: Docente del corso *Programmazione e Analisi dei Dati, Modulo A: Programmazione* (Laurea in Informatica Umanistica, Università di Pisa, 6 CFU) and *Methods for the specification and verification of business processes* (Laurea Magistrale in Informatica e Networking e Laurea Magistrale in Business Informatics, Università di Pisa, 6 CFU).

A.A. 2009/10: Docente del corso *Laboratorio di Programmazione* (Laurea in Informatica Umanistica, Università di Pisa, 5 CFU).

A.A. 2008/09: Docente del corso *Laboratorio di Programmazione* (Laurea in Informatica Umanistica, Università di Pisa, 5 CFU).

A.A. 2007/08: Docente del corso *Laboratorio di Introduzione alla Programmazione - Modulo II* (Laurea in Informatica, Università di Pisa, 3 CFU) e *Linguaggi e Metodi della Matematica* (Laurea in Informatica Applicata, Università di Pisa, Polo di La Spezia, 6 CFU). **Assistente** a *Laboratorio di Introduzione alla Programmazione - Modulo I* (Laurea in Informatica, Università di Pisa, 3 CFU).

A.A. 2006/07: Docente del corso *Laboratorio di Introduzione alla Programmazione - Modulo I* (Laurea in Informatica, Università di Pisa, 3 CFU), *Laboratorio di Introduzione alla Programmazione - Modulo II* (Laurea in Informatica, Università di Pisa, 3 CFU) e *Linguaggi e Metodi della Matematica* (Laurea in Informatica Applicata, Università di Pisa, Polo di La Spezia, 6 CFU).

A.A. 2005/06: Docente del corso *Laboratorio di Introduzione alla Programmazione - Modulo I* (Laurea in Informatica, Università di Pisa, 3 CFU), *Laboratorio di Introduzione alla Programmazione - Modulo II* (Laurea in Informatica, Università di Pisa, 3 CFU) e *Linguaggi e Metodi della Matematica* (Laurea in Informatica Applicata, Università di Pisa, Polo di La Spezia, 6 CFU).

A.A. 2004/05: Assistente a *Laboratorio di Introduzione alla Programmazione - Modulo I* (Laurea in Informatica, Università di Pisa, 3 CFU) e *Laboratorio di Introduzione alla Programmazione - Modulo II* (Laurea in Informatica, Università di Pisa, 3 CFU).

A.A. 2003/04: Docente del corso *Laboratorio di Introduzione alla Programmazione* (Laurea in Informatica, Università di Pisa, 4 CFU) e *Laboratorio di Programmazione di Strutture Dati* (Laurea in Informatica, Università di Pisa, 4 CFU).

A.A. 2002/03: Docente del corso *Laboratorio di Programmazione di Strutture Dati* (Laurea in Informatica, Università di Pisa, 4 CFU) e *Laboratorio di Programmazione C* (Laurea in Matematica, Università di Pisa, 3 CFU).

A.A. 2000/01: Assistente a *Laboratorio di Informatica I e II* (Laurea in Informatica, Università di Pisa).

Altre Esperienze Didattiche

Maggio 2004: Seminari dal titolo *Introduzione ai servizi web: SOAP e UDDI e Tecnologie per servizi web: WSDL e WSFL* (durata 3h ciascuno) nell'ambito del corso *Tecnologie Web / Internet* (Corso di Laurea in Informatica, Università di Cesena).

Settembre–Ottobre 2003: Docente del corso *Introduzione alla Programmazione di Pagine Web* (Corso di aggiornamento per personale docente, tecnico e amministrativo delle scuole medie-superiori, presso l'I.T.C. "Francesco Carrara" di Lucca, durata 25h).

Aprile 2002: Docente del modulo di *Programmazione Script di Rete* del corso per *Tecnico Informatico EC - SIT* inserito nel *Progetto di Formazione Superiore Integrata* (IFTS), presso il Liceo Scientifico "Galileo Galilei" di Castelnuovo di Garfagnana (LU).

Dicembre 2000: Docente del modulo di *Programmazione per Componenti* del corso per *Analista Programmatore Esperto Reti* inserito nel *Progetto di Formazione Superiore Integrata* (IFTS), presso l'I.T.C. "Francesco Marchi" di Pescia (PT).

1998–2001: Tutor per i corsi di *Ricerca Operativa e Gestione Aziendale* e di *Cultura Aziendale*, rispettivamente per studenti del II e III anno del Diploma Universitario in Informatica (progetto CAMPUS), Università di Pisa.

4. Attività di Gestione della Ricerca

Progetti di Ricerca in Corso

2013–2016: Responsabile di sede del progetto *CINA* (Compositionality, Interaction, Negotiation, Autonomicity, MIUR PRIN 2010-2011).

Progetti di Ricerca Conclusi

- Prima **Partecipante** e poi **Responsabile di sede** del progetto *ASCENS* (Autonomic Service-Component Ensembles, IST-FP7, FET open Integrated Project).
- **Coordinatore nazionale** del progetto *IPODS* (Interacting Processes in Open-ended Distributed Systems, MIUR, PRIN 2008).
- **Task Leader** per il progetto *TOSCA* (Teoria della Concorrenza, Linguaggi di Ordine Superiore e Strutture di Tipi (cofinanziato MURST).

- **Membro** dei progetti *SENSORIA* (Software Engineering for Service Oriented Overlay Computers, IST-FP6, FET-GC2 Integrated Project), *RUPOS* (Ricerca sull'Usabilità delle Piattaforme Orientate ai Servizi, Regione Toscana), *TOCAL.IT* (Tecnologie Orientate alla Conoscenza per Aggregazioni di Imprese in Internet, MURST, FIRB), *ISMANET* (Infrastrutture Software per Reti Ad-hoc Orientate ad Ambienti Difficili, MIUR), *AGILE* (Architectures for Mobility, IST Programme on FET-GC), *CoMeta* (Computational Metamodels, MIUR), *Architetture Software ad Alta Qualità di Servizio per Global Computing su Cooperative Wide Area Network* (Sottoprogetto 4 del Progetto MIUR su Strumenti, Ambienti e Applicazioni Innovative per la Società dell'Informazione), *NAPI* (Network-Aware Programming and Interoperability, joint with Microsoft Research Europe), *GETGRATS* (General Theory of Graph Transformation Systems, EC Research TMR Network), *CONFER2* (ESPRIT Working Group), *Coordina* (ESPRIT Working Group), *Tecniche Formali per la Specifica, l'Analisi, la Verifica, la Sintesi e la Trasformazione di Sistemi Software* (MURST), *Progettazione e Verifica di Sistemi Eterogenei Connessi mediante Reti* (CNR Integrated Project).

Organizzazione di Eventi — Chair

TGC 2011: 6th Int. Symp. on Trustworthy Global Computing, 9–10 Sept. 2011, Aachen, Germany; **co-chair**.

FMOODS & FORTE 2011: joint 13th IFIP Int. Conf. on Formal Methods for Open Object-based Distributed Systems and 31st IFIP Int. Conf. on FORmal TEchniques for Networked and Distributed Systems, 6–9 June 2011, Reykjavic, Iceland; **co-chair**.

ICE 2010: 3rd Interaction and Concurrency Experience, 10 June 2010, Amsterdam, The Netherlands; **co-chair**.

WS-FM 2008: 5th Int. Wk. on Web Services and Formal Methods, 4–5 Sept. 2008, Milan, Italy; **co-chair**.

GT-VMT 2006: 5th Int. Wk. on Graph Transformations and Visual Modeling Techniques, 1–2 April 2006, Wien, Austria; **co-chair**.

Organizzazione di Conferenze — Membro del Comitato di Programma

COORDINATION 2016: 18th IFIP Int. Conf. on Coordination Models and Languages, 6–9 June 2016, Heraklion, Crete, Greece;

FACS 2015: 12th Int. Symp. on Formal Aspects of Component Software, 14–16 Oct. 2015, Niterói, Rio de Janeiro, Brazil;

CONCUR 2015: 26th Int. Conf. on Concurrency Theory, 1–4 Sept. 2015, Madrid, Spain;

FACS 2014: 11th Int. Symp. on Formal Aspects of Component Software, 10–12 Sept. 2014, Bertinoro, Italy;

FORTE 2014: 34th IFIP Int. Conf. on Formal Techniques for Distributed Objects, Components and Systems, 3–6 June 2014, Berlin, Germany;

FSTTCS 2013: 35th IARCS Annual Conf. on Foundations of Software Technology and Theoretical Computer Science, 10–14 Dec. 2013, Bangalore, India;

FACS 2013: 10th Int. Symp. on Formal Aspects of Component Software, 28–30 Oct. 2013, Nanchang, China;

FACS 2012: 9th Int. Symp. on Formal Aspects of Component Software, 12–14 Sept. 2012, Mountain View, USA;

TGC 2012: 7th Int. Symp. on Trustworthy Global Computing, 7–8 Sept. 2012, Newcastle upon Tyne, UK;

CONCUR 2012: 23rd Int. Conf. on Concurrency Theory, 3–8 Sept. 2012, Newcastle upon Tyne, UK;

COORDINATION 2012: 14th Int. Conf. on Coordination Models and Languages, 14–15 June 2012, Stockholm, Sweden;

FMOODS & FORTE: 2012: joint 14th IFIP Int. Conf. on Formal Methods for Open Object-based Distributed Systems and 32nd IFIP Int. Conf. on FORmal TEchniques for Networked and Distributed Systems, 14–15 June 2012, Stockholm, Sweden;

FACS 2011: 8th Int. Symp. on Formal Aspects of Component Software, 14–16 Sept. 2011, Oslo, Norway;

CONCUR 2011: 22nd Int. Conf. on Concurrency Theory, 5–10 Sept. 2011, Aachen, Germany;

IFIP TCS 2010, track B on Logic, Semantics, Specification and Verification: 6th IFIP Int. Conf. on Theoretical Computer Science, 20–23 Sept. 2010, Brisbane, Australia;

- AMAST 2010:** 13th Int. Conf. on Algebraic Methodology And Software Technology, 23–26 June 2010, Québec City, Canada;
- Petri Nets 2010:** 31st Int. Conf. on Application and Theory of Petri Nets and Other Models of Concurrency, 23–25 June 2010, Braga, Portugal;
- COORDINATION 2010:** 12th Int. Conf. on Coordination Models and Languages, 7–10 June 2010, Amsterdam, The Netherlands;
- DEVS 2010:** Symp. on Theory of Modeling and Simulation, 11–15 April 2010, Orlando, Florida, USA;
- TGC 2010:** 5th Int. Symp. on Trustworthy Global Computing, 24–26 Febr. 2010, Munich, Germany;
- COMPSAC 2009:** 33rd Annual IEEE Int. Computer Software and Applications Conference, 20–24 July 2009, Seattle, Washington, USA;
- Petri Nets 2009:** 30th Int. Conf. on Application and Theory of Petri Nets and Other Models of Concurrency, 22–26 July 2009, Paris, France;
- SOFSEM 2009, track on Foundations of Computer Science:** 35th Int. Conf. on Current Trends in Theory and Practice of Computer Science, 24–30 Jan. 2009, Spindleruv Mlyn, Czech Republic;
- AMAST 2008:** 12th Int. Conf. on Algebraic Methodology and Software Technology, 28–31 July 2008, Urbana, Illinois, USA;
- COORDINATION 2008:** 10th Int. Conf. on Coordination Models and Languages, 4–6 June 2008, Oslo, Norway;
- FoSSaCS 2008:** 11th Int. Conf. on Foundations of Software Science and Computation Structures, 29 March–6 April 2008, Budapest, Hungary;
- TGC 2007:** 3rd Symp. on Trustworthy Global Computing, 5–6 Nov. 2007, Sophia-Antipolis, France;
- ICTCS 2007:** 10th Italian Conf. on Theoretical Computer Science, 3–5 Oct. 2007, Roma, Italy;
- ICALP 2006, track B on Logic, Semantics, and Theory of Programming:** 33rd Int. Colloquium on Automata, Languages and Programming, 9–16 July 2006, S. Servolo, Venezia, Italy.
- Organizzazione di Workshop — Membro del Comitato di Programma
- WRLA 2016:** 11th Int. Wk. on Rewriting Logic and its Applications, 2–3 April 2016, Eindhoven, The Netherlands;
- SAC 2016, track on SOAP:** 31st Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 4–8 April 2016, Pisa, Italy;
- ICE 2015:** 8th Interaction and Concurrency Experience, 5 June 2015, Grenoble, France;
- WS-FM 2014:** 11th Int. Wk. on Web Services and Formal Methods, 11–12 Sept. 2014, Haifa, Israel;
- ICE 2014:** 7th Interaction and Concurrency Experience, 6 June 2014, Berlin, Germany;
- WRLA 2014:** 10th Int. Wk. on Rewriting Logic and its Applications, 5–6 April 2014, Grenoble, France;
- SAC 2014, track on SOAP:** 29th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 24–28 March 2014, Gyeongju, Korea;
- ICE 2013:** 6th Interaction and Concurrency Experience, 6 June 2013, Florence, Italy;
- SAC 2013, track on SOAP:** 28th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 18–22 March 2013, Coimbra, Portugal;
- WS-FM 2012:** 9th Int. Wk. on Web Services and Formal Methods, 6-7 Sept. 2012, Tallinn, Estonia;
- ICE 2012:** 5th Interaction and Concurrency Experience, 16 June 2012, Stockholm, Sweden;
- SAC 2012, track on SOAP:** 27th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 25–29 March 2012, Riva del Garda (Trento), Italy;
- WRLA 2012:** 9th Int. Wk. on Rewriting Logic and its Applications, 24-25 March 2012, Tallin, Estonia;

- ASE 2011 TOOLS:** 26th IEEE/ACM Int. Conf. on Automated Software Engineering, Tool Demonstration Track, 6-10 Nov., 2011, Lawrence, Kansas, USA;
- AMMSE 2011:** 2nd Wk. on Algebraic Methods in Model-Based Software Engineering, 30 June 2011, Zurich, Switzerland;
- ICE 2011:** 4th Interaction and Concurrency Experience on Reliable and Contract-based Interaction, 9 June 2011, Reykjavik, Iceland;
- SAC 2011, track on SOAP:** 26th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 21–25 March 2011, TaiChung, Taiwan;
- WiGoWiN 2010:** What is Going on and What is Next? Internal Conference of the Computer Science Department in Pisa, 26–27 May 2010, Pisa, Italy;
- SAC 2010, track on SOAP:** 25th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 21–26 March 2010, Sierre, Switzerland;
- WRLA 2010:** 8th Int. Wk. on Rewriting Logic and its Applications, 20–21 March 2010, Paphos, Cyprus;
- SEEFM 2009:** 4th South-East European Wk. on Formal Methods, 5 Dec. 2009, Thessaloniki, Greece;
- WS-FM 2009:** 6th Int. Wk. on Web Services and Formal Methods, 4–5 Sept. 2010, Bologna, Italy;
- ICE 2009:** 2nd Interaction and Concurrency Experience, 31 August 2009, Bologna, Italy;
- SAC 2009, track on SOAP:** 24th Annual ACM Symp. on Applied Computing, Track on Service Oriented Architectures and Programming, 8–12 March 2009, Waikiki Beach, Honolulu, Hawaii, USA;
- GlobalComp 2008:** Wk. on Global Computing Models and Technologies, 27–28 Sept. 2008, Timisoara, Romania;
- WRLA 2008:** 7th Int. Wk. on Rewriting Logic and its Applications, 29–30 March 2008, Budapest, Hungary;
- WS-FM 2007:** 4th Int. Wk. on Web Services and Formal Methods, 28–29 Sept. 2007, Brisbane, Australia;
- YR-SOC 2007:** 2nd European Young Researchers Wk. on Service Oriented Computing, 11–12 June 2007, Leicester, UK;
- GT-VMT 2007:** 6th Int. Wk. on Graph Transformation and Visual Modeling Techniques, 31 March–1 April 2007, Braga, Portugal;
- WS-FM 2006:** 3rd Int. Wk. on Web Services and Formal Methods, 8–9 Sept. 2006, Wien, Austria;
- WRLA 2006:** 6th Int. Wk. on Rewriting Logic and its Applications, 25–26 March 2006, Wien, Austria;
- WS-FM 2005:** 2nd Int. Wk. on Web Services and Formal Methods, 1–3 Sept. 2005, Versailles, France;
- WS-FM 2004:** 1st Int. Wk. on Web Services and Formal Methods, 23–24 Febr. 2004, Pisa, Italy.

Organizzazione di Eventi — Membro del Comitato Organizzatore

- FLACOS 2010:** 4th Wk. on Formal Languages and Analysis of Contract-Oriented Software, 17–18 Sept. 2010, Pisa, Italy; **organization chair.**
- WADT 2008:** 19th Int. Wk. on Algebraic Development Techniques, 13–16 June 2008, Pisa, Italy.
- TGC 2006:** 2nd Symp. on Trustworthy Global Computing, 7–9 Nov. 2006, Lucca, Italy; **organization chair.**
- Coordination 2004:** 6th Int. Conf. on Coordination Models and Languages, 24–27 Febr. 2004, Pisa, Italy.
- WRLA 2002:** 4th Int. Wk. on Rewriting Logic and its Applications, 19–21 Sept. 2002, Pisa, Italy.

Attività di Revisione

Oltre a servire come membro del PC di numerosi eventi, ha avuto un'intensa attività di revisore di articoli come esperto della materia per le principali riviste e convegni del settore, tra i quali Theoretical Computer Science, Information and Computation, Logical Methods in Computer Science, Mathematical Structures in Computer Science, Science of Computer Programming, Journal of Logic and Algebraic Programming, Fundamenta Informaticae, ICALP, POPL, LICS, CONCUR, FOSSACS, ESOP, FASE, PN, COORDINATION, FORTE e molti altri.

5. Attività di Ricerca

Inquadramento dell'Attività Scientifica

La ricerca più recente del candidato ha riguardato lo studio dei sistemi concorrenti, distribuiti e mobili, aperti e open ended, con particolare attenzione verso paradigmi emergenti quali Global Computing (GC), Service Oriented Computing (SOC) e Autonomic Computing.

I servizi si distinguono dal software ordinario perché sono entità computazionali largamente autonome, indipendenti dalla piattaforma, che devono poter essere descritte, rintracciate e invocate. Conseguentemente, le tecniche note di specifica, analisi e verifica devono essere estese e completate con soluzioni innovative che siano in grado di affrontare la grande scalabilità richiesta dalle applicazioni SOC. Questi aspetti sono comuni anche al paradigma GC, dove i calcolatori globali sono tutte quelle infrastrutture computazionali programmabili, distribuite su scala mondiale, e in grado di fornire servizi in modo uniforme e indipendente dal contesto (e.g. internet, reti di telefonia, ma anche motori di ricerca, sistemi peer-to-peer). Nei sistemi autonomici, le entità computazionali devono essere in grado di adattarsi al variare dell'ambiente o degli obiettivi perseguiti e per questo presentano caratteristiche uniche di dinamicità e adattatività, spesso definite ad hoc e difficili da astrarre e formalizzare.

L'obiettivo della ricerca del candidato è quello di trovare e valutare paradigmi e modelli atti a favorire la specifica, analisi e verifica di questi sistemi complessi.

Risultati Conseguiti

Una parte rilevante della ricerca del candidato si è focalizzata sulle problematiche relative alla corretta composizione di servizi sia dal punto di vista della cosiddetta *orchestrazione*, dove la composizione viene sviluppata come flusso di controllo e di dati tra i servizi coinvolti, che dal punto di vista della cosiddetta *coreografia*, dove i servizi sono autonomi e interagenti secondo un protocollo globale. In questo ambito, tre concetti particolarmente interessanti riguardano le astrazioni *transazionali*, dove servono meccanismi in grado di garantire che composizioni complesse di servizi possano essere viste e usate, a un opportuno livello di atomicità, come un nuovo servizio; l'uso disciplinato delle *sessioni*, intese come protocolli di conversazione tra servizi interagenti; lo studio di reti di *connettori* avanzati come middleware di coordinamento per sistemi di componenti interagenti.

Le tecniche utilizzate dal candidato sono basate prevalentemente su teorie algebriche e coalgebriche, sulla teoria delle categorie, su teoria della riscrittura di termini e di grafi, su modelli concorrenti come (opportune estensioni delle) reti di Petri, su (opportune estensioni di) calcoli di processi, su tipi comportamentali e su linguaggi di programmazione concorrenti e distribuiti.

L'uso dei calcoli di processi ha consentito sia di formalizzare le primitive caratteristiche di specifici ambiti applicativi, come l'ambito transazionale o l'uso di sessioni, che di realizzare e sperimentare dei prototipi ispirati direttamente alle nuove primitive linguistiche.

Dal punto di vista puramente fondazionale, le tecniche algebriche, coalgebriche e categoriali hanno permesso di definire e consolidare la semantica dei sistemi considerati, offrendo ad esempio rappresentazioni rigorose dello spazio delle computazioni concorrenti e con causalità e permettendo di confrontare e relazionare semantiche e modelli differenti.

I risultati conseguiti sono stati presentati ai principali congressi legati all'area di ricerca e pubblicati su importanti riviste del settore scientifico di riferimento.

Prodotti Software

ELM: R. Bruni, F. Santeramo. Event Log Manager, 2015.

MESSI: R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, A. Vandin. Maude Ensemble Strategies Simulator and Inquirer, <http://sysma.imtlucca.it/tools/ensembles>, sviluppato nell'ambito del progetto ASCENS, 2013.

mSagas: R. Bruni, A. Kersten, I. Lanese, G. Spagnolo. Maude support for experimenting with compensation languages, sviluppato nell'ambito del progetto ASCENS, 2012.

eagerBPMN: R. Bruni, A. Corradini, G. Ferrari, T. Flagella, G. Spagnolo. Analysis of BPMN processes with eager semantics (ProM 6 plug-in), sviluppato nell'ambito del progetto RUPOS, 2011.

Maude editor: R. Bruni, I. Gueorguieva, A. Lluch-Lafuente. Textual and graphical editors for Maude (Eclipse plug-in), 2011.

ADR: R. Bruni, A. Lluch-Lafuente, U. Montanari. Architectural Design Rewriting (ADR), <http://www.albertolluch.com/research/adr/>, sviluppato nell'ambito del progetto SENSORIA, 2008.

TypSes: R. Bruni, L. Mezzina. Type inference for session types (TypSes), <http://www.di.unipi.it/~mezzina/>, sviluppato nell'ambito del progetto SENSORIA, 2008.

JTWS: R. Bruni, G. Ferrari, R. Guanciale, H. Melgratti, U. Montanari, D. Strollo, E. Tuosto. Java Transactional Web Services (JTWS), sviluppato nell'ambito del progetto SENSORIA, 2005.

Indicatori

Eventi in cifre: ha contribuito all'organizzazione di 72 eventi: 33 conferenze e 39 workshops (7 volte in qualità di chair).

Articoli in cifre: ha circa 125 pubblicazioni elencate su DBLP Computer Science Bibliography (<http://dblp.uni-trier.de>) di cui circa la metà apparse sulla serie LNCS di Springer e di cui un quinto apparse su rivista, collaborando complessivamente con più di 80 colleghi, e in maniera particolarmente stretta con circa 40 di essi.

Indicatori bibliometrici: Secondo i dati raccolti da Google Scholar (<http://scholar.google.com>), i suoi tre articoli più citati sono [89] (241 citazioni dal 2005), [38] (177 citazioni dal 2006) e [99] (121 citazioni) e il suo **Hirsch's h-index** è **27** (almeno 27 dei suoi lavori sono stati citati almeno 27 volte ciascuno).

Secondo i dati raccolti da Harzing's PoP (Publish-or-Perish, <http://www.harzing.com/pop.htm>), i suoi articoli hanno raccolto complessivamente più di **2700 citazioni**, con una media di circa **16 citazioni per articolo**, il suo **Hirsch's h-index** è **28**, il suo **Eghe's g-index** è **47** e il suo **h-index contemporaneo** è **20**.

Erdős number = 4: La distanza di collaborazione dal famoso matematico Ungherese Paul Erdős é stata calcolata grazie al tool disponibile al sito

<http://www.ams.org/mathscinet/collaborationDistance.html>

6. Elenco Completo delle Pubblicazioni

Articoli su Rivista

- [1] R. Bruni, U. Montanari, and M. Sammartino. A coalgebraic semantics for causality in petri nets. *Journal of Logical and Algebraic Methods in Programming*, 2015. ISSN 2352-2208. To appear.
- [2] R. Bruni, U. Montanari, and M. Sammartino. Revisiting causality, coalgebraically. *Acta Inform.*, 52(1):5–33, February 2015. ISSN: 0001-5903 (Print) 1432-0525 (Online). DOI <http://dx.doi.org/10.1007/s00236-014-0207-9>.
- [3] R. Bruni, H. Melgratti, and U. Montanari. cJoin: join with communicating transactions. *Math. Struct. in Comput. Sci.*, 25(3):566–618, March 2015. ISSN 0960-1295 (Print) 1469-8072 (Online). DOI <http://dx.doi.org/10.1017/S0960129512000928>.
- [4] M. Boreale, R. Bruni, R. De Nicola, and M. Loreti. CaSPiS: A calculus of sessions, pipelines and services. *Math. Struct. in Comput. Sci.*, 25(3):666–709, March 2015. ISSN 0960-1295 (Print) 1469-8072 (Online). DOI <http://dx.doi.org/10.1017/S0960129512000953>.
- [5] R. Bruni, A. Lluch-Lafuente, and U. Montanari. Constraint design rewriting. *Sci. Comput. Program.*, 97(1):23–30, January 2015. ISSN 0167-6423. DOI <http://dx.doi.org/10.1016/j.scico.2013.11.015>.
- [6] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. Modelling and analyzing adaptive self-assembly strategies with Maude. *Sci. Comput. Program.*, 99:75–94, March 2015. ISSN 0167-6423. DOI <http://dx.doi.org/10.1016/j.scico.2013.11.043>.
- [7] C. Bodei, L. Brodo, R. Bruni, and D. Chiarugi. A flat process calculus for nested membrane interactions. *Sci. Ann. Comp. Sci.*, 24(1):91–136, August 2014. ISSN 1843-8121. DOI <http://dx.doi.org/10.7561/SACS.2014.1.91>.
- [8] R. Bruni, U. Montanari, G. Plotkin, and D. Terreni. On hierarchical graphs: Reconciling bigraphs, gs-monoidal theories and gs-graphs. *Fundam. Inform.*, 134(3-4):287–317, December 2014. ISSN 0169-2968 (Print) 1875-8681 (Online). DOI <http://dx.doi.org/10.3233/FI-2014-1103>.

- [9] L. Zhao, R. Bruni, and Z. Liu. A sound and complete theory of graph transformations for service programming with sessions and pipelines. *Sci. Comput. Program.*, 94(3):255–288, November 2014. ISSN 0167-6423. DOI <http://dx.doi.org/10.1016/j.scico.2013.11.029>.
- [10] R. Bruni, H. Melgratti, U. Montanari, and P. Sobocinski. Connector algebras for C/E and P/T nets' interactions. *Logical Methods in Computer Science*, 9(3), September 2013. ISSN 1860-5974. DOI [http://dx.doi.org/10.2168/LMCS-9\(3:16\)2013](http://dx.doi.org/10.2168/LMCS-9(3:16)2013).
- [11] R. Bruni, A. Lluch-Lafuente, and U. Montanari. On structured model-driven transformations. *International Journal of Software and Informatics*, 5(1-2):185–206, 2011. ISSN 1673-7288. Open access <http://www.ijsi.org>.
- [12] R. Bruni, F. Gadducci, and A. Lluch-Lafuente. An algebra of hierarchical graphs and its application to structural encoding. *Sci. Ann. Comp. Sci.*, 20:53–96, October 2010. ISSN 1843-8121. Open access <http://www.infoiasi.ro/bin/Annals/Article?v=XX{\&}a=2>.
- [13] R. Bruni and I. Lanese. Parametric synchronizations in mobile nominal calculi. *Theoret. Comput. Sci.*, 402(2-3):102–119, August 2008. ISSN 0304-3975. DOI <http://dx.doi.org/10.1016/j.tcs.2008.04.029>.
- [14] R. Bruni, A. Lluch-Lafuente, U. Montanari, and E. Tuosto. Style-based architectural reconfigurations. *Bulletin of the EATCS*, 94:161–180, February 2008. ISSN 0252-9742. <http://www.eatcs.org/publications/bulletin.html>.
- [15] P. Baldan, A. Bracciali, and R. Bruni. A semantic framework for open processes. *Theoret. Comput. Sci.*, 389(3):446–483, December 2007. ISSN 0304-3975. DOI <http://dx.doi.org/10.1016/j.tcs.2007.09.004>.
- [16] R. Bruni, I. Lanese, and U. Montanari. A basic algebra of stateless connectors. *Theoret. Comput. Sci.*, 366(1-2):98–120, November 2006. ISSN 0304-3975. DOI <http://dx.doi.org/10.1016/j.tcs.2006.07.005>.
- [17] R. Bruni and J. Meseguer. Semantic foundations for generalized rewrite theories. *Theoret. Comput. Sci.*, 360:386–414, August 2006. ISSN 0304-3975. DOI <http://dx.doi.org/10.1016/j.tcs.2006.04.012>.
- [18] R. Bruni, U. Montanari, and V. Sassone. Observational congruences for dynamically reconfigurable tile systems. *Theoret. Comput. Sci.*, 335(2-3):331–372, May 2005. ISSN 0304-3975. DOI <http://dx.doi.org/10.1016/j.tcs.2004.10.044>.
- [19] R. Bruni and U. Montanari. Concurrent models for Linda with transactions. *Math. Struct. in Comput. Sci.*, 14(3):421–468, June 2004. ISSN 0960-1295. DOI <http://dx.doi.org/10.1017/S0960129504004189>.
- [20] R. Bruni, F. Gadducci, and U. Montanari. Normal forms for algebras of connections. *Theoret. Comput. Sci.*, 286(2):247–292, September 2002. ISSN 0304-3975. DOI [http://dx.doi.org/10.1016/S0304-3975\(01\)00318-8](http://dx.doi.org/10.1016/S0304-3975(01)00318-8).
- [21] R. Bruni and U. Montanari. Dynamic connectors for concurrency. *Theoret. Comput. Sci.*, 281(1-2):131–176, May 2002. ISSN 0304-3975. DOI [http://dx.doi.org/10.1016/S0304-3975\(02\)00011-7](http://dx.doi.org/10.1016/S0304-3975(02)00011-7).
- [22] R. Bruni, J. Meseguer, and U. Montanari. Symmetric monoidal and cartesian double categories as a semantic framework for tile logic. *Math. Struct. in Comput. Sci.*, 12(1):53–90, February 2002. ISSN 0960-1295. DOI <http://dx.doi.org/10.1017/S0960129501003462>.
- [23] R. Bruni, U. Montanari, and F. Rossi. An interactive semantics of logic programming. *Theory and Practice of Logic Programming.*, 1(6):647–690, November 2001. ISSN 1471-0684. DOI <http://dx.doi.org/10.1017/S1471068401000035>.
- [24] R. Bruni, J. Meseguer, U. Montanari, and V. Sassone. Functorial models for Petri nets. *Inform. and Comput.*, 170(2):207–236, November 2001. ISSN 0890-5401. DOI <http://dx.doi.org/10.1006/inco.2001.3050>.
- [25] R. Bruni and U. Montanari. Zero-safe nets: Comparing the collective and individual token approaches. *Inform. and Comput.*, 156(1-2):46–89, January 2000. ISSN 0890-5401. DOI <http://dx.doi.org/10.1006/inco.1999.2819>.

Volumi Curati

- [26] S. Bliudze, A. Silva, R. Bruni, and M. Carbone, editors. *Special Issue of ICE'11*, volume 22 of *Sci. Ann. Comp. Sci.*, 2012. ISSN 1843-8121. DOI <http://dx.doi.org/10.7561/SACS.2012.1.1>.
- [27] R. Bruni and V. Sassone, editors. *Trustworthy Global Computing, 6th International Symposium, TGC 2011, Aachen, Germany, September 9-10, 2011, Revised Selected Papers*, volume 7173 of *Lect. Notes in Comput. Sci.* Springer Verlag, 2012. ISBN 978-3-642-30064-6. DOI [10.1007/978-3-642-30065-3](http://dx.doi.org/10.1007/978-3-642-30065-3).
- [28] S. Ben Mokhtar, S. Bliudze, R. Bruni, A. Silva, and A. Troina, editors. *Concurrency and Interaction in Complex Systems, Special Issue of ICE, CS2Bio and CAMPUS Workshops, Satellite Events of DisCoTec10*, volume 21 of *Sci. Ann. Comp. Sci.*, August 2011. ISSN 1843-8121. Open access <http://www.infoiasi.ro/bin/Annals/>.
- [29] A. Silva, S. Bliudze, R. Bruni, and M. Carbone, editors. *Fourth Interaction and Concurrency Experience: Reliable and Contract-based Interaction, ICE 2011, Reykjavik, Iceland, June 9, 2011*, volume 59 of *Elect. Proc. in Th. Comput. Sci.*, July 2011. ISSN 2075-2180. DOI <http://dx.doi.org/10.4204/EPTCS.59>.
- [30] R. Bruni and J. Dingel, editors. *Formal Techniques for Distributed Systems - Joint 13th IFIP WG 6.1 International Conference, FMOODS 2011, and 31st IFIP WG 6.1 International Conference, FORTE 2011, Reykjavik, Iceland, June 6-9, 2011. Proceedings*, volume 6722 of *Lect. Notes in Comput. Sci.* Springer Verlag, June 2011. ISBN 978-3-642-21460-8. DOI <http://dx.doi.org/10.1007/978-3-642-21461-5>.
- [31] S. Bliudze, R. Bruni, D. Grohmann, and A. Silva, editors. *Third Interaction and Concurrency Experience: Guaranteed Interaction, ICE 2010, Amsterdam, The Netherlands, June 10, 2010*, volume 38 of *Elect. Proc. in Th. Comput. Sci.*, October 2010. ISSN 2075-2180. DOI <http://dx.doi.org/10.4204/EPTCS.38>.
- [32] R. Bruni and K. Wolf, editors. *Web Services and Formal Methods, 5th International Workshop, WS-FM 2008, Milan, Italy, September 4-5, 2008, Revised Selected Papers*, volume 5387 of *Lect. Notes in Comput. Sci.* Springer Verlag, April 2009. ISBN 978-3-642-01363-8. DOI <http://dx.doi.org/10.1007/978-3-642-01364-5>.
- [33] R. Bruni and D. Varró, editors. *Graph Transformations and Visual Modeling Techniques, 5th International Workshop, GT-VMT 2006, Vienna, Austria, April 1-2, 2006*, volume 211 of *Elect. Notes in Th. Comput. Sci.* Elsevier Science, April 2008. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2008.04.024>.
- [34] U. Montanari, D. Sannella, and R. Bruni, editors. *Trustworthy Global Computing, Second Symposium, TGC 2006, Lucca, Italy, November 7-9, 2006, Revised Selected Papers*, volume 4661 of *Lect. Notes in Comput. Sci.* Springer Verlag, November 2007. ISBN 978-3-540-75333-9. DOI <http://dx.doi.org/10.1007/978-3-540-75336-0>.

Articoli su Invito

- [35] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. Awareness and control in adaptable transition systems. In Daniel Moldt, Heiko Rölke, and Harald Störrle, editors, *Proceedings of the International Workshop on Petri Nets and Software Engineering (PNSE'15), including the International Workshop on Petri Nets for Adaptive Discrete Event Control Systems (ADECS 2015) A satellite event of the conferences: 36th International Conference on Application and Theory of Petri Nets and Concurrency Petri Nets 2015 and 15th International Conference on Application of Concurrency to System Design ACSD 2015*, volume 1372 of *CEUR Workshop Proceedings*, pages 19–21. CEUR-WS.org, June 2015. <http://ceur-ws.org/Vol-1372>.
- [36] C. Bodei, L. Brodo, and R. Bruni. Open multiparty interaction. In Narciso Martí-Oliet and Miguel Palomino, editors, *Proceedings of WADT 2012, 21st International Workshop on Recent Trends in Algebraic Development Techniques, Revised Selected Papers*, volume 7841 of *Lect. Notes in Comput. Sci.*, pages 1–23. Springer Verlag, 2013. ISBN 978-3-642-37634-4. DOI http://dx.doi.org/10.1007/978-3-642-37635-1_1.
- [37] R. Bruni and A. Lluch-Lafuente. Ten virtues of structured graphs. In A. Boronat and R. Heckel, editors, *Proceedings of GT-VMT 2009, 8th International Workshop on Graph Transformation and Visual Modeling Techniques*, volume 18 of *Electronic Communications of the EASST*, pages 1–20. EASST, 2009. ISSN 1863-2122. <http://journal.ub.tu-berlin.de/index.php/eceasst>.

- [38] M. Boreale, R. Bruni, L. Caires, R. De Nicola, I. Lanese, M. Loreti, F. Martins, U. Montanari, A. Ravara, D. Sangiorgi, V. Vasconcelos, and G. Zavattaro. SCC: a service centered calculus. In M. Bravetti, M. Nunez, and G. Zavattaro, editors, *Proceedings of WS-FM 2006, 3rd International Workshop on Web Services and Formal Methods*, volume 4184 of *Lect. Notes in Comput. Sci.*, pages 38–57. Springer Verlag, September 2006. ISBN 3-540-38862-1. DOI http://dx.doi.org/10.1007/11841197_3.
- [39] R. Bruni. A logic for modular descriptions of asynchronous and synchronized concurrent systems (extended abstract). In C. Kirchner and H. Kirchner, editors, *Proceedings of WRLA'98, 2nd workshop on Rewriting Logic and its Applications*, volume 15 of *Elect. Notes in Th. Comput. Sci.*, pages 161–172. Elsevier Science, 1998. DOI [http://dx.doi.org/10.1016/S1571-0661\(05\)80760-1](http://dx.doi.org/10.1016/S1571-0661(05)80760-1).

Articoli su Atti di Congresso

- [40] R. Bruni, U. Montanari, and M. Sammartino. Causal trees, finally. In C. Bodei, G. Ferrari, and C. Priami, editors, *Proceedings of Programming Languages with Applications to Biology and Security, Essays Dedicated to Pierpaolo Degano on the Occasion of His 65th Birthday*, volume 9465 of *Lect. Notes in Comput. Sci.*, pages 27–43. Springer Verlag, October 2015. ISBN 978-3-319-25526-2. DOI http://dx.doi.org/10.1007/978-3-319-25527-9_4.
- [41] R. Bruni, H. Melgratti, and U. Montanari. A normal form for stateful connectors. In N. Martí-Oliet, P. Ölveczky, and C. Talcott, editors, *Proceedings of LRC 2015, Festschrift Symposium on Logic, Rewriting, and Concurrency - Essays dedicated to José Meseguer on the Occasion of His 65th Birthday*, volume 9200 of *Lect. Notes in Comput. Sci.*, pages 205–227. Springer Verlag, August 2015. ISBN 978-3-319-23164-8. DOI http://dx.doi.org/10.1007/978-3-319-23165-5_9.
- [42] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. A white box perspective on behavioural adaptation. In R. De Nicola and R. Hennicker, editors, *Proceedings of SSS 2015, Symposium and Festkolloquium on Software, Services, and Systems, in honour of Martin Wirsing on the Occasion of His Retirement from the Chair of Programming and Software Engineering*, volume 8950 of *Lect. Notes in Comput. Sci.*, pages 552–581. Springer Verlag, March 2015. ISBN 978-3-319-15544-9. DOI http://dx.doi.org/10.1007/978-3-319-15545-6_32.
- [43] R. Bruni, H. Melgratti, and U. Montanari. Behaviour, interaction and dynamics. In S. Iida, J. Meseguer, and K. Ogata, editors, *Proceedings of SAS 2014, Festschrift Symposium on Specification, Algebra, and Software - Essays Dedicated to Kokichi Futatsugi*, volume 8373 of *Lect. Notes in Comput. Sci.*, pages 382–401. Springer Verlag, April 2014. ISBN 978-3-642-54623-5. DOI http://dx.doi.org/10.1007/978-3-642-54624-2_19.
- [44] R. Bruni, H. Melgratti, and U. Montanari. From hierarchical BIP to Petri calculus. In S. Bensalem, Y. Lakhneck, and A. Legay, editors, *Proceedings of FPS 2014, From Programs to Systems. The Systems perspective in Computing - ETAPS Workshop in Honor of Joseph Sifakis*, volume 8415 of *Lect. Notes in Comput. Sci.*, pages 54–68. Springer Verlag, July 2014. ISBN 978-3-642-54847-5. DOI http://dx.doi.org/10.1007/978-3-642-54848-2_4.
- [45] R. Bruni, C. Ferreira, and A. Kersten Kauer. First-order dynamic logic for compensable processes. In M. Sirjani, editor, *Proceedings of COORDINATION 2012, 14th International Conference on Coordination Models and Languages*, volume 7274 of *Lect. Notes in Comput. Sci.*, pages 104–121. Springer Verlag, June 2012. ISBN 978-3-642-30828-4. DOI http://dx.doi.org/10.1007/978-3-642-30829-1_8.
- [46] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. A conceptual framework for adaptation. In J. de Lara and A. Zisman, editors, *Proceedings of FASE 2012, 15th International Conference on Fundamental Approaches to Software Engineering*, volume 7212 of *Lect. Notes in Comput. Sci.*, pages 240–254. Springer Verlag, March 2012. ISBN 978-3-642-28871-5. DOI http://dx.doi.org/10.1007/978-3-642-28872-2_17.
- [47] R. Bruni, A. Corradini, G. Ferrari, T. Flagella, R. Guancia, and G. Spagnolo. Misurare processi di business. In *Atti del Congresso Nazionale AICA 2011, Smart Tech & Smart Innovation, la Strada per costruire il Futuro*. Politecnico di Torino, 2011. ISBN 9788890540646. In italian.
- [48] R. Bruni and A. Kersten Kauer. LTS semantics for compensation-based processes. In C. Palamidessi and M. Ryan, editors, *Proceedings of TGC 2012, 7th International Symposium on Trustworthy Global Computing, Revised Selected Papers*, volume 8191 of *Lect. Notes in Comput. Sci.*, pages 112–128. Springer Verlag, September 2013. ISBN 978-3-642-41156-4. DOI http://dx.doi.org/10.1007/978-3-642-41157-1_8.

- [49] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. Adaptable transition systems. In N. Martí-Oliet and M. Palomino, editors, *Proceedings of WADT 2012, 21st International Workshop on Recent Trends in Algebraic Development Techniques, Revised Selected Papers*, volume 7841 of *Lect. Notes in Comput. Sci.*, pages 95–110. Springer Verlag, May 2013. ISBN 978-3-642-37634-4. DOI http://dx.doi.org/10.1007/978-3-642-37635-1_6.
- [50] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and A. Vandin. Modelling and analyzing adaptive self-assembly strategies with Maude. In F. Durán, editor, *Proceedings of WRLA 2012, 9th International Workshop on Rewriting Logic and Its Applications, Revised Selected Papers*, volume 7571 of *Lect. Notes in Comput. Sci.*, pages 118–138. Springer Verlag, March 2012. ISBN 978-3-642-34004-8. DOI http://dx.doi.org/10.1007/978-3-642-34005-5_7.
- [51] R. Bruni, H. Melgratti, and U. Montanari. Connector algebras, petri nets, and BIP. In E. Clarke, I. Virbitskaiete, and A. Voronkov, editors, *Proceedings of PSI 2011, 8th Andrei Ershov Informatics Conference*, volume 7162 of *Lect. Notes in Comput. Sci.*, pages 19–38. Springer Verlag, May 2012. ISBN 978-3-642-29708-3. DOI http://dx.doi.org/10.1007/978-3-642-29709-0_2.
- [52] R. Bruni and A. Lluch-Lafuente. Evaluating the performance of model transformation styles in Maude. In F. Arbab and P. Ölveczky, editors, *Proceedings of FACS 2011, 8th International Workshop on Formal Aspects of Component Software*, volume 7253 of *Lect. Notes in Comput. Sci.*, pages 79–96. Springer Verlag, December 2012. ISBN 978-3-642-35742-8. DOI http://dx.doi.org/10.1007/978-3-642-35743-5_6.
- [53] R. Bruni, H. Melgratti, and U. Montanari. A survey on basic connectors and buffers. In B. Beckert, F. Damiani, F. de Boer, and M. Bonsangue, editors, *Proceedings of FMCO 2011, 10th International Symposium on Formal Methods for Components and Objects, Revised Selected Papers*, volume 7542 of *Lect. Notes in Comput. Sci.*, pages 49–68. Springer Verlag, February 2013. ISBN 978-3-642-35886-9. DOI http://dx.doi.org/10.1007/978-3-642-35887-6_3.
- [54] R. Bruni, A. Corradini, G. Ferrari, T. Flagella, R. Guanciale, and G. Spagnolo. Applying process analysis to the Italian eGovernment enterprise architecture. In M. Carbone and J.-M. Petit, editors, *Proceedings of WS-FM 2011, 8th International Workshop on Web Services and Formal Methods*, volume 7176 of *Lect. Notes in Comput. Sci.*, pages 111–127. Springer Verlag, April 2012. ISBN 978-3-642-29833-2. DOI http://dx.doi.org/10.1007/978-3-642-29834-9_9.
- [55] R. Bruni, A. Kersten, and I. Lanese. A new strategy for distributed compensations with interruption in long-running transactions. In T. Mossakowski and H.-J. Kreowski, editors, *Proceedings of WADT 2010, 20th International Workshop on Algebraic Development Techniques*, volume 7137 of *Lect. Notes in Comput. Sci.*, pages 42–60. Springer Verlag, February 2012. ISBN 978-3-642-28411-3. DOI http://dx.doi.org/10.1007/978-3-642-28412-0_5.
- [56] R. Bruni, Z. Liu, and L. Zhao. Graph representation of sessions and pipelines for structured service programming. In L.S. Barbosa and M. Lumpe, editors, *Proceedings of FACS 2010, 7th International Workshop on Formal Aspects of Component Software*, volume 6921 of *Lect. Notes in Comput. Sci.*, pages 259–276. Springer Verlag, January 2012. ISBN 978-3-642-27268-4. DOI http://dx.doi.org/10.1007/978-3-642-27269-1_15.
- [57] R. Bruni, H. Melgratti, and U. Montanari. A connector algebra for P/T nets interactions. In J.-P. Katoen and B. Koenig, editors, *Proceedings of CONCUR 2011, 22nd International Conference on Concurrency Theory*, volume 6901 of *Lect. Notes in Comput. Sci.*, pages 312–326. Springer Verlag, August 2011. ISBN 978-3-642-23216-9. DOI http://dx.doi.org/10.1007/978-3-642-23217-6_21.
- [58] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and U. Montanari. On gs-monoidal theories for graphs with nesting. In G. Engels, C. Lewerentz, W. Schäfer, A. Schürr, and B. Westfechtel, editors, *Proceedings of FMN 2009, Graph Transformations and Model-Driven Engineering: Essays Dedicated to Manfred Nagl on the Occasion of his 65th Birthday*, volume 5765 of *Lect. Notes in Comput. Sci.*, pages 59–86. Springer Verlag, November 2010. ISBN 978-3-642-17321-9. DOI http://dx.doi.org/10.1007/978-3-642-17322-6_4.
- [59] R. Bruni, A. Corradini, and U. Montanari. Modeling a service and session calculus with hierarchical graph transformation. In C. Ermel, H. Ehrig, F. Orejas, and G. Taentzer, editors, *Proceedings of GMT 2010, International Colloquium on Graph and Model Transformation, On the occasion of the 65th birthday of Hartmut Ehrig*, volume 30 of *ECEASST*. EASST, November 2010. ISSN 1863-2122. <http://journal.ub.tu-berlin.de/index.php/eceasst>.

- [60] R. Bruni, F. Gadducci, and A. Lluch-Lafuente. An algebra of hierarchical graphs. In M. Hofmann, M. Wirsing, and A. Rauschmayer, editors, *Proceedings of TGC 2010, 5th Symposium on Trustworthy Global Computing*, volume 6084 of *Lect. Notes in Comput. Sci.*, pages 205–221. Springer Verlag, September 2010. ISBN 978-3-642-15639-7. DOI http://dx.doi.org/10.1007/978-3-642-15640-3_14.
- [61] R. Bruni, F. Gadducci, and A. Lluch-Lafuente. A graph syntax for processes and services. In C. Laneve and J. Su, editors, *Proceedings of WS-FM 2009, 6th International Workshop on Web Services and Formal Methods*, volume 6194 of *Lect. Notes in Comput. Sci.*, pages 46–60. Springer Verlag, August 2010. ISBN 978-3-642-14457-8. DOI http://dx.doi.org/10.1007/978-3-642-14458-5_3.
- [62] A. Boronat, R. Bruni, A. Lluch-Lafuente, U. Montanari, and G. Paolillo. Exploiting the hierarchical structure of rule-based specifications for decision planning. In J. Hatcliff and E. Zucca, editors, *Proceedings of FMOODS/FORTE 2010, joint 12th IFIP WG 6.1 International Conference on Formal Methods for Open Object-Based Distributed Systems and 30th IFIP WG 6.1 International Conference on Formal Techniques for Networked and Distributed Systems*, volume 6117 of *Lect. Notes in Comput. Sci.*, pages 2–16. Springer Verlag, June 2010. ISBN 978-3-642-13463-0. DOI http://dx.doi.org/10.1007/978-3-642-13464-7_2.
- [63] R. Bruni, M. Hölzl, N. Koch, A. Lluch-Lafuente, P. Mayer, U. Montanari, A. Schroeder, and M. Wirsing. A service-oriented UML profile with formal support. In L. Baresi, C.-H. Chi, and J. Suzuki, editors, *Proceedings of ICSOC/ServiceWave 2009, 7th International Joint Conference on Service-Oriented Computing*, volume 5900 of *Lect. Notes in Comput. Sci.*, pages 455–469, November 2009. ISBN 978-3-642-10382-7. DOI http://dx.doi.org/10.1007/978-3-642-10383-4_34.
- [64] C. Bodei, L. Brodo, and R. Bruni. Static detection of logic flaws in service-oriented applications. In P. Degano and L. Viganò, editors, *Proceedings of ARSPA-WITS 2009, Joint Workshop on Automated Reasoning for Security Protocol Analysis and Issues in the Theory of Security*, volume 5511 of *Lect. Notes in Comput. Sci.*, pages 70–87. Springer Verlag, August 2009. ISBN 978-3-642-03458-9. DOI http://dx.doi.org/10.1007/978-3-642-03459-6_5.
- [65] F. Arbab, R. Bruni, D. Clarke, I. Lanese, and U. Montanari. Tiles for Reo. In A. Corradini and U. Montanari, editors, *Proceedings of WADT 2008, 19th International Workshop on Algebraic Development Techniques*, volume 5486 of *Lect. Notes in Comput. Sci.*, pages 37–55. Springer Verlag, August 2009. ISBN 978-3-642-03428-2. DOI http://dx.doi.org/10.1007/978-3-642-03429-9_4.
- [66] A. Bracciali, R. Bruni, and A. Lluch-Lafuente. On symbolic semantics for name-decorated contexts. In F. Bonchi, D. Grohmann, P. Spoletini, A. Troina, and E. Tuosto, editors, *Proceedings of ICE 2008, 1st Interaction and Concurrency Experience*, volume 229.3 of *Elect. Notes in Th. Comput. Sci.*, pages 37–58. Elsevier Science, July 2009. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2009.06.038>.
- [67] R. Bruni, R. De Nicola, M. Loreti, and L.G. Mezzina. Provably correct implementations of services. In C. Kaklamanis and F. Nielson, editors, *Proceedings of TGC 2008, 4th Symposium on Trustworthy Global Computing*, volume 5474 of *Lect. Notes in Comput. Sci.*, pages 69–86. Springer Verlag, April 2009. ISBN 978-3-642-00944-0. DOI http://dx.doi.org/10.1007/978-3-642-00945-7_5.
- [68] R. Bruni, A. Lluch-Lafuente, and U. Montanari. Hierarchical design rewriting with Maude. In G. Rosu, editor, *Proceedings of WRLA 2008, 7th International Workshop on Rewriting Logic and its Applications*, volume 238.3 of *Elect. Notes in Th. Comput. Sci.*, pages 45–62. Elsevier Science, June 2009. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2009.05.012>.
- [69] R. Bruni and L.G. Mezzina. Types and deadlock freedom in a calculus of services, sessions and pipelines. In G. Rosu and J. Meseguer, editors, *Proceedings of AMAST 2008, 12th International Conference on Algebraic Methodology and Software Technology*, volume 5140 of *Lect. Notes in Comput. Sci.*, pages 100–115. Springer Verlag, July 2008. ISBN 978-3-540-79979-5. DOI http://dx.doi.org/10.1007/978-3-540-79980-1_8.
- [70] R. Bruni, A. Bucchiarone, S. Gnesi, and H. Melgratti. Modelling dynamic software architectures using typed graph grammars. In B. Koenig, R. Heckel, and A. Rensink, editors, *Proceedings of GT-VC 2007, 3rd Workshop on Graph Transformation for Verification and Concurrency*, volume 213.1 of *Elect. Notes in Th. Comput. Sci.*, pages 39–53. Elsevier Science, May 2008. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2008.04.073>.

- [71] R. Bruni, A. Bucchiarone, S. Gnesi, D. Hirsch, and A. Lluch-Lafuente. Graph-based design and analysis of dynamic software architectures. In P. Degano, R. De Nicola, and J. Meseguer, editors, *Concurrency, Graphs and Models, Essays Dedicated to Ugo Montanari on the Occasion of His 65th Birthday*, volume 5065 of *Lect. Notes in Comput. Sci.*, pages 37–56. Springer Verlag, June 2008. ISBN 978-3-540-68676-7. DOI http://dx.doi.org/10.1007/978-3-540-68679-8_4.
- [72] M. Boreale, R. Bruni, R. De Nicola, and M. Loreti. Sessions and pipelines for structured service programming. In G. Barthe and F. de Boer, editors, *Proceedings of FMOODS 2008, 10th IFIP International Conference on Formal Methods for Open Object-based Distributed Systems*, volume 5051 of *Lect. Notes in Comput. Sci.*, pages 19–38. Springer Verlag, June 2008. ISBN 978-3-540-68862-4. DOI http://dx.doi.org/10.1007/978-3-540-68863-1_3.
- [73] R. Bruni, I. Lanese, H. Melgratti, and E. Tuosto. Multiparty sessions in SOC. In D. Lea and G. Zavattaro, editors, *Proceedings of COORDINATION 2008, 10th International Conference on Coordination Models and Languages*, volume 5052 of *Lect. Notes in Comput. Sci.*, pages 67–82. Springer Verlag, May 2008. ISBN 978-3-540-68264-6. DOI http://dx.doi.org/10.1007/978-3-540-68265-3_5.
- [74] R. Bruni, A. Lluch-Lafuente, U. Montanari, and E. Tuosto. Service oriented architectural design. In G. Barthe and C. Fournet, editors, *Proceedings of TGC 2007, 3rd International Symposium on Trustworthy Global Computing*, volume 4912 of *Lect. Notes in Comput. Sci.*, pages 186–203. Springer Verlag, March 2008. ISBN 978-3-540-78662-7. DOI http://dx.doi.org/10.1007/978-3-540-78663-4_14.
- [75] R. Bruni and I. Lanese. PRISMA: A mobile calculus with parameterized synchronization. In U. Montanari, D. Sannella, and R. Bruni, editors, *Proceedings of TGC 2006, 2nd International Symposium on Trustworthy Global Computing*, volume 4661 of *Lect. Notes in Comput. Sci.*, pages 132–149. Springer Verlag, November 2007. ISBN 978-3-540-75333-9. DOI http://dx.doi.org/10.1007/978-3-540-75336-0_9.
- [76] P. Baldan, A. Bracciali, L. Brodo, and R. Bruni. Deducing interactions in partially unspecified biological systems. In H. Anai, K. Horimoto, and T. Kutsia, editors, *Proceedings of AB 2007, 2nd International Conference on Algebraic Biology*, volume 4545 of *Lect. Notes in Comput. Sci.*, pages 262–276. Springer Verlag, August 2007. ISBN 978-3-540-73432-1. DOI http://dx.doi.org/10.1007/978-3-540-73433-8_19.
- [77] A. Baragatti, R. Bruni, H. Melgratti, U. Montanari, and G. Spagnolo. Prototype platforms for distributed agreements. In A. Brogi, J.-M. Jacquet, and E. Pimentel, editors, *Proceedings of FOCLASA 2004, 3rd International Workshop on Foundations of Coordination Languages and Software Architectures*, volume 180.2 of *Elect. Notes in Th. Comput. Sci.*, pages 21–40. Elsevier Science, June 2007. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2006.10.044>.
- [78] R. Bruni, H. Melgratti, and U. Montanari. Event structure semantics for dynamic graph grammars. In P. Baldan, H. Ehrig, J. Padberg, and G. Rozenberg, editors, *Proceedings of PNGT 2006, Workshop on Petri Nets and Graph Transformation*, volume 2 of *Electronic Communications of the EASST*, pages 1–19. EASST, 2007. ISSN 1863-2122. <http://journal.ub.tu-berlin.de/index.php/eceasst>.
- [79] R. Bruni, H. Melgratti, and E. Tuosto. Translating Orc features into Petri nets and join calculus. In M. Bravetti, M. Nunez, and G. Zavattaro, editors, *Proceedings of WS-FM 2006, 3rd International Workshop on Web Services and Formal Methods*, volume 4184 of *Lect. Notes in Comput. Sci.*, pages 123–137. Springer Verlag, September 2006. ISBN 3-540-38862-1. DOI http://dx.doi.org/10.1007/11841197_8.
- [80] R. Bruni and H. Melgratti. Dynamic graph transformation systems. In A. Corradini, H. Ehrig, U. Montanari, L. Ribeiro, and G. Rozenberg, editors, *Proceedings of ICGT 2006, 3rd International Conference on Graph Transformation*, volume 4178 of *Lect. Notes in Comput. Sci.*, pages 230–244. Springer Verlag, September 2006. ISBN 3-540-38870-2. DOI http://dx.doi.org/10.1007/11841883_17.
- [81] R. Bruni, H. Melgratti, and U. Montanari. Event structure semantics for nominal calculi. In C. Baier and H. Hermanns, editors, *Proceedings of CONCUR 2006, 17th International Conference on Concurrency Theory*, volume 4137 of *Lect. Notes in Comput. Sci.*, pages 295–309. Springer Verlag, August 2006. ISBN: 3-540-37376-4. DOI http://dx.doi.org/10.1007/11817949_20.
- [82] R. Bruni and H. Melgratti. Non-sequential behaviour of dynamic nets. In S. Donatelli and P.S. Thiagarajan, editors, *Proceedings of ATPN 2006, 27th International Conference on Application and Theory of Petri Nets and Other Models Of Councurrency*, volume 4024 of *Lect. Notes in Comput. Sci.*, pages 105–124. Springer Verlag, June 2006. ISBN: 3-540-34699-6. DOI http://dx.doi.org/10.1007/11767589_7.

- [83] R. Bruni, G. Ferrari, H. Melgratti, U. Montanari, D. Strollo, and E. Tuosto. From theory to practice in transactional composition of web services. In M. Bravetti, L. Kloul, and G. Zavattaro, editors, *Proceedings of WS-FM 2005, 2nd International Workshop on Web Services and Formal Methods*, volume 3670 of *Lect. Notes in Comput. Sci.* Springer Verlag, August 2005. ISBN 3-540-28701-9. DOI http://dx.doi.org/10.1007/11549970_20.
- [84] R. Bruni, I. Lanese, and U. Montanari. Complete axioms for stateless connectors. In J.L. Fiadeiro, N. Harman, M. Roggenbach, and J. Rutten, editors, *Proceedings of CALCO 2005, 1st Conference on Algebra and Coalgebra in Computer Science*, volume 3629 of *Lect. Notes in Comput. Sci.*, pages 98–113. Springer Verlag, August 2005. ISBN 3-540-28620-9. DOI http://dx.doi.org/10.1007/11548133_7.
- [85] R. Bruni, M. Butler, C. Ferreira, T. Hoare, H. Melgratti, and U. Montanari. Comparing two approaches to compensable flow composition. In M. Abadi and L. de Alfaro, editors, *Proceedings of CONCUR 2005, 16th International Conference on Concurrency Theory*, volume 3653 of *Lect. Notes in Comput. Sci.*, pages 383–397. Springer Verlag, August 2005. ISBN 3-540-28309-9. DOI http://dx.doi.org/10.1007/11539452_30.
- [86] R. Bruni, F. Gadducci, U. Montanari, and P. Sobocinski. Deriving weak bisimulation congruences from reduction systems. In M. Abadi and L. de Alfaro, editors, *Proceedings of CONCUR 2005, 16th International Conference on Concurrency Theory*, volume 3653 of *Lect. Notes in Comput. Sci.*, pages 293–307. Springer Verlag, August 2005. ISBN 3-540-28309-9. DOI http://dx.doi.org/10.1007/11539452_24.
- [87] P. Baldan, A. Bracciali, and R. Bruni. Symbolic equivalences for open systems. In C. Priami and P. Quaglia, editors, *Proceedings of GC 2004, International Workshop on Global Computing 2004*, volume 3267 of *Lect. Notes in Comput. Sci.*, pages 1–17. Springer Verlag, February 2005. ISBN 3-540-24101-9. DOI http://dx.doi.org/10.1007/978-3-540-31794-4_1.
- [88] R. Bruni and I. Lanese. On graph(ic) encodings. In B. Koenig, U. Montanari, and P. Gardner, editors, *Proceedings of Dagstuhl Seminar n. 04241, Graph Transformations and Process Algebras for Modeling Distributed and Mobile Systems*, pages 23–39, February 2005. ISSN 1862-4405.
- [89] R. Bruni, H. Melgratti, and U. Montanari. Theoretical foundations for compensations in flow composition languages. In *Proceedings of POPL 2005, 32nd Annual ACM SIGPLAN - SIGACT Symposium on Principles of Programming Languages*, pages 209–220. ACM, January 2005. ISBN 1-58113-830-X. DOI <http://dx.doi.org/10.1145/1040305.1040323>.
- [90] R. Bruni, F. Honsell, M. Lenisa, and M. Miculan. Modeling fresh names in pi-calculus using abstractions. In J. Adamek and S. Milius, editors, *Proceedings of CMCS 2004, 7th International Workshop on Coalgebraic Methods in Computer Science*, volume 106 of *Elect. Notes in Th. Comput. Sci.*, pages 25–41. Elsevier Science, December 2004. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2004.02.039>.
- [91] R. Bruni, H. Melgratti, and U. Montanari. Flat committed join in join. In F. Honsell, M. Lenisa, and M. Miculan, editors, *Proceedings of CoMeta 2003, Final Workshop of the CoMeta Project*, volume 104 of *Elect. Notes in Th. Comput. Sci.*, pages 39–59. Elsevier Science, November 2004. ISSN 1571-0661. DOI <http://dx.doi.org/10.1016/j.entcs.2004.09.021>.
- [92] R. Bruni, J.L. Fiadeiro, I. Lanese, A. Lopes, and U. Montanari. New insights on architectural connectors. In J.-J. Levy, E.W. Mayr, and J.C. Mitchell, editors, *Proceedings of IFIP TCS 2004, 3rd IFIP International Conference on Theoretical Computer Science*, IFIP Conference Proceedings, pages 367–379. Kluwer Academics, August 2004. ISBN 1-4020-8140-5.
- [93] R. Bruni, H. Melgratti, and U. Montanari. Nested commits for mobile calculi: extending join. In J.-J. Levy, E.W. Mayr, and J.C. Mitchell, editors, *Proceedings of IFIP TCS 2004, 3rd IFIP International Conference on Theoretical Computer Science*, IFIP Conference Proceedings, pages 563–576. Kluwer Academics, August 2004. ISBN 1-4020-8140-5.
- [94] R. Bruni, J. Meseguer, and U. Montanari. Tiling transactions in rewriting logic. In F. Gadducci and U. Montanari, editors, *Proceedings of WRLA 2002, 4th Workshop on Rewriting Logic and its Applications*, volume 71 of *Elect. Notes in Th. Comput. Sci.*, pages 90–109. Elsevier Science, April 2004. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(05\)82530-7](http://dx.doi.org/10.1016/S1571-0661(05)82530-7).
- [95] R. Bruni, J. Meseguer, U. Montanari, and V. Sassone. Algebraic theories for contextual pre-nets. In C. Blundo and C. Laneve, editors, *Proceedings of ICTCS 2003, 8th Italian Conference on Theoretical Computer Science*, volume 2841 of *Lect. Notes in Comput. Sci.*, pages 256–270. Springer Verlag, November 2003. ISBN 3-540-20216-1. DOI http://dx.doi.org/10.1007/978-3-540-45208-9_21.

- [96] L. Andrade, P. Baldan, H. Baumeister, R. Bruni, A. Corradini, R. De Nicola, J. L. Fiadeiro, F. Gadducci, S. Gnesi, P. Hoffman, N. Koch, P. Kosiuczenko, A. Lapadula, D. Latella, A. Lopes, M. Loreti, M. Massink, F. Mazzanti, U. Montanari, C. Oliveira, R. Pugliese, A. Tarlecki, M. Wermelinger, M. Wirsing, and A. Zawlocki. AGILE: Software architecture for mobility. In M. Wirsing, D. Pattinson, and R. Hennicker, editors, *Proceedings of WADT 2002, 16th International Workshop on Algebraic Development Techniques*, volume 2755 of *Lect. Notes in Comput. Sci.*, pages 1–33. Springer Verlag, November 2003. ISBN 3-540-20537-3. DOI http://dx.doi.org/10.1007/978-3-540-40020-2_1.
- [97] P. Baldan, R. Bruni, and U. Montanari. Pre-nets, read arcs and unfolding: a functorial presentation. In M. Wirsing, D. Pattinson, and R. Hennicker, editors, *Proceedings of WADT 2002, 16th International Workshop on Algebraic Development Techniques*, volume 2755 of *Lect. Notes in Comput. Sci.*, pages 145–164. Springer Verlag, November 2003. ISBN 3-540-20537-3. DOI http://dx.doi.org/10.1007/978-3-540-40020-2_8.
- [98] R. Bruni and F. Gadducci. Some algebraic laws for spans (and their connections with multirelations). In W. Kahl, D.L. Parnas, and G. Schmidt, editors, *Proceedings of RelMiS 2001, Relational Methods in Software*, volume 44(3) of *Elect. Notes in Th. Comput. Sci.*, pages 175–193. Elsevier Science, May 2003. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(04\)80937-X](http://dx.doi.org/10.1016/S1571-0661(04)80937-X).
- [99] R. Bruni and J. Meseguer. Generalized rewrite theories. In J.C.M. Baeten, J.K. Lenstra, J. Parrow, and G.J. Woeginger, editors, *Proceedings of ICALP 2003, 30th International Colloquium on Automata, Languages and Programming*, volume 2719 of *Lect. Notes in Comput. Sci.*, pages 252–266. Springer Verlag, January 2003. ISBN 3-540-40493-7. DOI http://dx.doi.org/10.1007/3-540-45061-0_22.
- [100] P. Baldan, A. Bracciali, and R. Bruni. Bisimulation by unification. In H. Kirchner and Ringeissen, editors, *Proceedings of AMAST 2002, 9th International Conference on Algebraic Methodology And Software Technology*, volume 2422 of *Lect. Notes in Comput. Sci.*, pages 254–270. Springer Verlag, September 2002. ISBN 3-540-44144-1. DOI http://dx.doi.org/10.1007/3-540-45719-4_18.
- [101] R. Bruni, C. Laneve, and U. Montanari. Orchestrating transactions in join calculus. In L. Brim, P. Jancar, M. Kretinsky, and A. Kucera, editors, *Proceedings of CONCUR 2002, 13th International Conference on Concurrency Theory*, volume 2421 of *Lect. Notes in Comput. Sci.*, pages 321–336. Springer Verlag, August 2002. ISBN 3-540-44043-7. DOI http://dx.doi.org/10.1007/3-540-45694-5_22.
- [102] R. Bruni, F. Honsell, M. Lenisa, and M. Miculan. Comparing higher-order encodings in logical frameworks and tile logic. In U. Montanari, editor, *Proceedings of TOSCA 2001, Final Workshop of the TOSCA Project*, volume 62 of *Elect. Notes in Th. Comput. Sci.*, pages 136–156. Elsevier Science, June 2002. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(04\)00324-X](http://dx.doi.org/10.1016/S1571-0661(04)00324-X).
- [103] R. Bruni and U. Montanari. Zero-safe net models for transactions in Linda. In U. Montanari and V. Sassone, editors, *Proceedings of ConCoord 2001, International Workshop on Concurrency and Coordination*, volume 54 of *Elect. Notes in Th. Comput. Sci.*, pages 106–116. Elsevier Science, August 2001. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(04\)00239-7](http://dx.doi.org/10.1016/S1571-0661(04)00239-7).
- [104] R. Bruni, D. de Frutos-Escrig, N. Martí-Oliet, and U. Montanari. Bisimilarity congruences for open terms and term graphs via tile logic. In C. Palamidessi, editor, *Proceedings of CONCUR 2000, 11th International Conference on Concurrency Theory*, volume 1877 of *Lect. Notes in Comput. Sci.*, pages 259–274. Springer Verlag, August 2000. ISBN 3-540-67897-2. DOI http://dx.doi.org/10.1007/3-540-44618-4_20.
- [105] R. Bruni, U. Montanari, and V. Sassone. Open ended systems, dynamic bisimulation and tile logic. In J. van Leeuwen, O. Watanabe, M. Hagiya, P.D. Mosses, and T. Ito, editors, *Proceedings of IFIP TCS2000, IFIP International Conference on Theoretical Computer Science*, volume 1872 of *Lect. Notes in Comput. Sci.*, pages 440–456. Springer Verlag, August 2000. ISBN 3-540-67823-9. DOI http://dx.doi.org/10.1007/3-540-44929-9_31.
- [106] R. Bruni and V. Sassone. Algebraic models for contextual nets. In U. Montanari, J.D.P. Rolim, and E. Welzl, editors, *Proceedings of ICALP 2000, 27th International Colloquium on Automata, Languages and Programming*, volume 1853 of *Lect. Notes in Comput. Sci.*, pages 175–186. Springer Verlag, July 2000. ISBN 3-540-67715-1. DOI http://dx.doi.org/10.1007/3-540-45022-X_15.
- [107] R. Bruni and U. Montanari. Executing transactions in zero-safe nets. In M. Nielsen and D. Simpson, editors, *Proceedings of ICATPN 2000, 21st International Conference on Application and Theory of Petri Nets*, volume 1825 of *Lect. Notes in Comput. Sci.*, pages 83–102. Springer Verlag, June 2000. ISBN 3-540-67693-7. DOI http://dx.doi.org/10.1007/3-540-44988-4_7.

- [108] R. Bruni, J. Meseguer, and U. Montanari. Executable tile specifications for process calculi. In J.-P. Finance, editor, *Proceedings of FASE'99, Fundamental Approaches to Software Engineering*, volume 1577 of *Lect. Notes in Comput. Sci.*, pages 60–76. Springer Verlag, March 1999. ISBN 3-540-65718-5. DOI http://dx.doi.org/10.1007/978-3-540-49020-3_5.
- [109] R. Bruni and U. Montanari. Cartesian closed double categories, their lambda-notation, and the pi-calculus. In *Proceedings of LICS'99, 14th Annual IEEE Symposium on Logic in Computer Science*, pages 246–265. IEEE Computer Society, July 1999. Presentazione invitata di Ugo Montanari. ISBN 0-7695-0158-3. DOI <http://dx.doi.org/10.1109/LICS.1999.782620>.
- [110] R. Bruni, J. Meseguer, U. Montanari, and V. Sassone. Functorial semantics for Petri nets under the individual token philosophy. In M. Hofmann, G. Rosolini, and D. Pavlovic, editors, *Proceedings of CTCS'99, 8th Category Theory and Computer Science*, volume 29 of *Elect. Notes in Th. Comput. Sci.* Elsevier Science, 1999. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(05\)80302-0](http://dx.doi.org/10.1016/S1571-0661(05)80302-0).
- [111] R. Bruni and U. Montanari. Zero-safe nets: Composing nets via transition synchronization. In H. Weber, H. Ehrig, and W. Reisig, editors, *Proceedings of International Colloquium on Petri Net Technologies for Modelling Communication Based Systems*, pages 43–80. Fraunhofer Gesellschaft ISST, 1999.
- [112] R. Bruni, F. Gadducci, and U. Montanari. Normal forms for partitions and relations. In J.L. Fiadeiro, editor, *Proceedings of WADT'98, 13th Workshop on Recent Trends in Algebraic Development Techniques*, volume 1589 of *Lect. Notes in Comput. Sci.*, pages 31–47. Springer Verlag, January 1999. ISBN 3-540-66246-4. DOI http://dx.doi.org/10.1007/3-540-48483-3_3.
- [113] R. Bruni, J. Meseguer, U. Montanari, and V. Sassone. A comparison of Petri net semantics under the collective token philosophy. In J. Hsiang and A. Ohori, editors, *Proceedings of ASIAN'98, 4th Asian Computing Science Conference*, volume 1538 of *Lect. Notes in Comput. Sci.*, pages 225–244. Springer Verlag, December 1998. ISBN 3-540-65388-0. DOI http://dx.doi.org/10.1007/3-540-49366-2_18.
- [114] R. Bruni, J. Meseguer, and U. Montanari. Implementing tile systems: Some examples from process calculi. In P. Degano, U. Vaccaro, and G. Pirillo, editors, *Proceedings of ICTCS'98, 6th Italian Conference on Theoretical Computer Science*, pages 168–179. World Scientific, November 1998. ISBN 981-02-3655-7.
- [115] R. Bruni, J. Meseguer, and U. Montanari. Internal strategies in a rewriting implementation of tile systems. In C. Kirchner and H. Kirchner, editors, *Proceedings of WRLA'98, 2nd Workshop on Rewriting Logic and its Applications*, volume 15 of *Elect. Notes in Th. Comput. Sci.*, pages 263–284. Elsevier Science, 1998. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(05\)80016-7](http://dx.doi.org/10.1016/S1571-0661(05)80016-7).
- [116] R. Bruni and U. Montanari. Zero-safe nets: The individual token approach. In F. Parisi-Presicce, editor, *Proceedings of WADT'97, 12th Workshop on Recent Trends in Algebraic Development Techniques*, volume 1376 of *Lect. Notes in Comput. Sci.*, pages 122–140. Springer Verlag, April 1998. ISBN 3-540-64299-4. DOI http://dx.doi.org/10.1007/3-540-64299-4_30.
- [117] R. Bruni and U. Montanari. Zero-safe nets, or transition synchronization made simple. In C. Palamidessi and J. Parrow, editors, *Proceedings of EXPRESS'97, 4th Workshop on Expressiveness in Concurrency*, volume 7 of *Elect. Notes in Th. Comput. Sci.*, pages 55–74. Elsevier Science, 1997. ISSN 1571-0661. DOI [http://dx.doi.org/10.1016/S1571-0661\(05\)80466-9](http://dx.doi.org/10.1016/S1571-0661(05)80466-9).

Articoli in Libri e Collezioni

- [118] R. Bruni, U. Montanari, and M. Sammartino. Reconfigurable and software-defined networks of connectors and components. In M. Wirsing, M. Hözl, N. Koch, and P. Mayer, editors, *Software Engineering for Collective Autonomic Systems - The ASCENS Approach*, volume 8998 of *Lect. Notes in Comput. Sci.*, pages 73–106. Springer Verlag, September 2015. ISBN 978-3-319-16309-3. DOI http://dx.doi.org/10.1007/978-3-319-16310-9_2.
- [119] R. Bruni, A. Corradini, F. Gadducci, M. Hözl, A. Lluch-Lafuente, A. Vandin, and M. Wirsing. Reconciling white-box and black-box perspectives on behavioral self-adaptation. In M. Wirsing, M. Hözl, N. Koch, and P. Mayer, editors, *Software Engineering for Collective Autonomic Systems - The ASCENS Approach*, volume 8998 of *Lect. Notes in Comput. Sci.*, pages 163–184. Springer Verlag, September 2015. ISBN 978-3-319-16309-3. DOI http://dx.doi.org/10.1007/978-3-319-16310-9_4.

- [120] R. Bruni, H. Foster, A. Lluch-Lafuente, U. Montanari, and E. Tuosto. A formal support to business and architectural design for service-oriented systems. In M. Wirsing and M. Hözl, editors, *Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA project on Software Engineering for Service-Oriented Computing*, volume 6582 of *Lect. Notes in Comput. Sci.*, pages 133–152. Springer Verlag, 2011. ISBN 978-3-642-20400-5. DOI http://dx.doi.org/10.1007/978-3-642-20401-2_7.
- [121] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and U. Montanari. Hierarchical models for service-oriented systems. In M. Wirsing and M. Hözl, editors, *Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA project on Software Engineering for Service-Oriented Computing*, volume 6582 of *Lect. Notes in Comput. Sci.*, pages 349–368. Springer Verlag, 2011. ISBN 978-3-642-20400-5. DOI http://dx.doi.org/10.1007/978-3-642-20401-2_16.
- [122] L. Acciai, C. Bodei, M. Boreale, R. Bruni, and H.T. Vieira. Static analysis techniques for session-oriented calculi. In M. Wirsing and M. Hözl, editors, *Rigorous Software Engineering for Service-Oriented Systems - Results of the SENSORIA project on Software Engineering for Service-Oriented Computing*, volume 6582 of *Lect. Notes in Comput. Sci.*, pages 214–231. Springer Verlag, 2011. ISBN 978-3-642-20400-5. DOI http://dx.doi.org/10.1007/978-3-642-20401-2_10.
- [123] R. Bruni and U. Montanari. Costruzioni per la semantica operativa della concorrenza. In C. Bartocci and P. Odifreddi, editors, *La matematica, vol. IV: Pensare il mondo*, Grandi Opere, pages 181–218. Einaudi, 2010. ISBN 978-88-06-16427-0. In Italian.
- [124] R. Bruni. Calculi for service oriented computing. In M. Bernardo, L. Padovani, and G. Zavattaro, editors, *Proceedings of SFM 2009, 9th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Web Services*, volume 5569 of *Lect. Notes in Comput. Sci.*, pages 1–41. Springer Verlag, May 2009. ISBN 978-3-642-01917-3. DOI http://dx.doi.org/10.1007/978-3-642-01918-0_1.
- [125] R. Bruni, H. Melgratti, and U. Montanari. Extending the zero-safe approach to coloured, reconfigurable and dynamic nets. In J. Desel, W. Reisig, and G. Rozenberg, editors, *Advances in Petri Nets: Lectures on Concurrency and Petri Nets*, volume 3098 of *Lect. Notes in Comput. Sci.*, pages 291–327. Springer Verlag, June 2004. ISBN 978-3-540-22261-3. DOI http://dx.doi.org/10.1007/978-3-540-27755-2_7.
- [126] R. Bruni and V. Sassone. Two algebraic process semantics for contextual nets. In H. Ehrig, G. Juhás, J. Padberg, and G. Rozenberg, editors, *Advances in Petri Nets: Unifying Petri Nets*, volume 2128 of *Lect. Notes in Comput. Sci.*, pages 427–456. Springer Verlag, December 2001. ISBN 3-540-43067-9. DOI http://dx.doi.org/10.1007/3-540-45541-8_13.
- [127] R. Bruni and U. Montanari. Transactions and zero-safe nets. In H. Ehrig, G. Juhás, J. Padberg, and G. Rozenberg, editors, *Advances in Petri Nets: Unifying Petri Nets*, volume 2128 of *Lect. Notes in Comput. Sci.*, pages 380–426. Springer Verlag, December 2001. ISBN 3-540-43067-9. DOI http://dx.doi.org/10.1007/3-540-45541-8_12.

Tesi di Dottorato

- [128] R. Bruni. *Tile Logic for Synchronized Rewriting of Concurrent Systems*. PhD thesis, Dipartimento di Informatica, Università di Pisa, 1999. Published as Technical Report TD-1/99.

Libri

- [129] R. Bruni, A. Corradini, and V. Gervasi. *Programmazione in Java, Seconda edizione*. Apogeo, 2011. In Italian.
- [130] R. Bruni, A. Corradini, and V. Gervasi. *Programmazione in Java*. Apogeo, 2009. In Italian.

Abstract e Rapporti Tecnici

- [131] S. Bliudze, R. Bruni, M. Carbone, and A. Silva. Towards interaction reliability in concurrent applications. *Sci. Ann. Comp. Sci.*, 22(1):1–4, 2012. ISSN: 1843-8121 (Print) 2248-2695 (Online). DOI <http://dx.doi.org/10.7561/SACS.2012.1.1>.

- [132] S. Ben Mokhtar, S. Bliudze, R. Bruni, A. Silva, and A. Troina. Concurrency and interaction in complex systems. *Sci. Ann. Comp. Sci.*, 21(1):1–4, 2011. ISSN: 1843-8121 (Print) 2248-2695 (Online). Open Access <http://www.info.uaic.ro/bin/Annals/Article?v=XXIII1{\&}a=0>.
- [133] R. Bruni, A. Corradini, F. Gadducci, A. Lluch-Lafuente, and U. Montanari. Rewriting nested graphs, through term graphs (abstract). In T. Mossakowski, editor, *Pre-proceedings of WADT 2010, 20th International Workshop on Algebraic Development Techniques*, pages 54–56, 2010.
- [134] R. Bruni, A. Kersten, and I. Lanese. On the semantics of distributed compensations with interruption (abstract). In T. Mossakowski, editor, *Pre-proceedings of WADT 2010, 20th International Workshop on Algebraic Development Techniques*, pages 47–48, 2010.
- [135] R. Bruni and U. Montanari. Models for open transactions (extended abstract). In *Pre-proceedings of FLA-COS 2009, 3rd Workshop on Formal Languages and Analysis of Contract-Oriented Software*, pages 25–33, 2009. Technical Report RR-385, Department of Informatics, University of Oslo.
- [136] F. Arbab, R. Bruni, D. Clarke, I. Lanese, and U. Montanari. Tiles for reo (extended abstract). In A. Corradini and F. Gadducci, editors, *Pre-proceedings of WADT 2008, 19th International Workshop on Algebraic Development Techniques*, pages 21–24, 2008. Technical Report TR-08-15, Dipartimento di Informatica, Università di Pisa.
- [137] R. Bruni, I. Lanese, H. Melgratti, L.G. Mezzina, and E. Tuosto. Towards trustworthy multiparty sessions (extended abstract). In V.T. Vasconcelos and N. Yoshida, editors, *Pre-proceedings of PLACES 2008, 1st Workshop on Programming Language Approaches to Concurrency and Communication-Centric Software*, pages 22–27, 2008. Technical Report DI-FCUL TR-08-14, Departamento de Informatica, Faculdade de Ciencias da Universidade de Lisboa.
- [138] R. Bruni, A. Lluch-Lafuente, U. Montanari, and E. Tuosto. Architectural design rewriting as an architecture description language (position paper). In K. Bhargavan, A. Gordon, T. Harris, and P. Toft, editors, *Proceedings of R2D2 2008, Workshop on the Rise and Rise of Declarative Datacentre*, pages 15–16, 2008. Technical Report MSR-TR-2008-61, Microsoft Research Cambridge.
- [139] R. Bruni and L.G. Mezzina. Types and deadlock free sessions for SCC. Technical Report TR-08-05, Dipartimento di Informatica, Università di Pisa, 2008.
- [140] R. Bruni, A. Lluch-Lafuente, U. Montanari, and E. Tuosto. Style-based architectural reconfigurations. Technical Report TR-07-17, Dipartimento di Informatica, Università di Pisa, 2007.
- [141] R. Bruni, I. Lanese, and U. Montanari. Normal forms for stateless connectors. Technical Report TR-05-11, Dipartimento di Informatica, Università di Pisa, 2005.
- [142] R. Bruni. Community, tiles and connectors (abstract). In B. Koenig, U. Montanari, and P. Gardner, editors, *Proceedings of Dagstuhl Seminar n. 04241, Graph Transformations and Process Algebras for Modeling Distributed and Mobile Systems*, pages 14–15, 2005.
- [143] A. Baragatti, R. Bruni, H. Melgratti, and U. Montanari. A prototype implementation of distributed agreements. Technical Report TR-04-10, Dipartimento di Informatica, Università di Pisa, 2004.
- [144] P. Baldan, A. Bracciali, and R. Bruni. Symbolic equivalences for open systems. Technical Report TR-03-16, Dipartimento di Informatica, Università di Pisa, 2003.
- [145] P. Baldan, R. Bruni, and U. Montanari. Pre-nets, read arcs and unfolding: a functorial presentation (extended abstract). In M. Wirsing, D. Pattinson, and R. Hennicker, editors, *Pre-proceedings of WADT 2002, 16th International Workshop on Algebraic Development Techniques*, pages 67–69, 2002. Technical Report n.0207, Institut für Informatik, LMU München.
- [146] R. Bruni, C. Laneve, and U. Montanari. Centralized and distributed orchestration of transactions in the join calculus. Technical Report TR-02-12, Dipartimento di Informatica, Università di Pisa, 2002.
- [147] R. Bruni, J. Meseguer, U. Montanari, and V. Sassone. Functorial models for contextual pre-nets. Technical Report TR-02-09, Dipartimento di Informatica, Università di Pisa, 2002.
- [148] R. Bruni, F. Honsell, M. Lenisa, and M. Miculan. Modeling fresh names in pi-calculus using abstractions. Technical Report TR 21/2002, Department of Mathematics and Computer Science, University of Udine, 2002.

- [149] R. Bruni, D. de Frutos-Escrig, N. Martí-Oliet, and U. Montanari. Tile bisimilarity congruences for open terms and term graphs. Technical Report TR-00-06, Dipartimento di Informatica, Università di Pisa, 2000.
- [150] R. Bruni and U. Montanari. First order and higher order tile models for open and mobile systems (abstract), 2000. Virtual Proceedings of TOSCA'00, Workshop Annuale del Progetto TOSCA.
- [151] R. Bruni and U. Montanari. Zero-safe nets: Modeling transactions via transition synchronization (abstract), 2000. Proceedings of Final Workshop of the Project “Tecniche Formali per la Specifica, l’Analisi, la Verifica, la Sintesi e la Trasformazione di Sistemi Software”.
- [152] R. Bruni, J. Meseguer, and U. Montanari. Tile logic: Rewriting with side-effects (abstract), 1998. Proceedings of First Workshop of the Project “Tecniche Formali per la Specifica, l’Analisi, la Verifica, la Sintesi e la Trasformazione di Sistemi Software”.
- [153] R. Bruni, J. Meseguer, and U. Montanari. Process and term tile logic. Technical Report SRI-CSL-98-06, SRI International, 1998. Also Technical Report TR-98-09, Dipartimento di Informatica, Università di Pisa.

Pisa, 17 OTTOBRE 2015

Firma _____ ROBERTO BRUNI