# Emilio Tuosto
# Curriculum Vitae
# July 19, 2005

## Contents


**1 General Informations** **2**

**2 Employment History** **2**

2.1 Previous academic appointments . . . 2

2.2 Previous non-academic appointments . . . 2

**3 Research Activity** **2**

3.1 Research interests . . . 2

3.2 Research statement . . . 3

3.3 Developed Tools . . . 5

3.4 Short term visits to research centers . . . 6

3.5 Activity on research projects . . . 6

3.6 Reviewing activity . . . 7

3.7 Organizing activities . . . 7

3.7.1 Conferences . . . 7

3.7.2 Workshop . . . 7

**4 Academic Teaching** **7**

4.1 Courses . . . 7

4.2 Master thesis Supervisions . . . 8

4.3 Bachelor thesis Supervisions . . . 8

**5 Curriculum studiorum** **8**

5.1 **Attended schools** . . . 9

**6 Publications** **9**

# 1 General Informations


| | |
|---|---|
| Full Name: | Emilio Tuosto |
| Birth: | 28th of December 1970, Lioni (Avellino - Italy) |
| Nationality: | Italian |
| Marital status: | Unmarried |
| Office phone: | +39 050 2212 799 |
| Office fax: | +39 050 2212 726 |
| Email: | etuosto@di.unipi.it |
| Homepage: | http://www.di.unipi.it/~etuosto |
| Military service: | served during 1997/1998 in the Italian Airforce |


# 2 Employment History

From the 6th of November 2002 I am research associate at the Dipartimento di Informatica dell'Università di Pisa in the group of *Concurrent Models of Computation* lead by Prof. Ugo Montanari:

- 06/11/2002-30/04/2005 Research associate at the Dipartimento di Informatica, Università di Pisa under contract with EC FET Global Computing PROFUNDIS (IST-2001-33100) *Proofs of Functionality for Mobile Distributed Systems*.
- 15/05/2005-31/08/2005 Research associate under contract with Dipartimento di Informatica, Università di Pisa.

## 2.1 Previous academic appointments

- 01/10/2001-18/12/2001 Teaching assistant, Dipartimento di Informatica dell'Università di Pisa.
- 18/04/2002-24/05/2002 Lecturer, Dipartimento di Matematica, Universita' di Pisa.
- 2002/2003 Lecturer, Dipartimento di Matematica, Universita' di Pisa.
- 26/07/2004-31/07/2004 Lecturer, Departamento de Computacion, Facultad de Ciencias Exactas y Naturales - Universidad de Buenos Aires.
- 20/01/2000-20/02/2000 Consultant, Dipartimento di Informatica, Universita' di Pisa

## 2.2 Previous non-academic appointments

- 16/10/2000-20/10/2000 Lecturer, DS-NET (Bologna), on behalf of Synapsis (Livorno).
- 19/02/2001-23/03/2001 Lecturer, Istituto Tecnico Commerciale "F. Marchi" (Pescia).
- 25/06/2001-27/06/2001 Lecturer, Telecom Italia (L'Aquila).
- 01/02/2003-25/05/2003 Lecturer, Agenzia Formatica "Comunicare" (Pisa).
- 10/10/1998-19/12/1998 Analyst, DLR Oberpfaffenhofen (Munich), on behalf of Intecs Sistemi (Pisa)

# 3 Research Activity

## 3.1 Research interests

My scientific interests are mainly oriented toward models and formal verification of systems. The guidelines of my research can be summarised as follows:

- *Formal methods* for the specification of concurrent/distributed and mobile systems.
- *Coordination and composition* of interacting components. Formalisation of components' behaviours and properties of composition in open systems.
- *Security* analysis of cryptographic protocols with formal techniques.
- *Verification* of mobile systems.

My main research interests regard the study of $a)$ models and formal verification for *Service Oriented Computing*, $b)$ verification of distributed and mobile systems. The formal devices exploited are

- graph rewriting techniques (synchronised hyperedge replacement, SHR for short)
- history-dependent automata
- model checking for nominal calculi (e.g., $\pi$-like calculi, KLAIM, etc.)
- type systems
- Spatial logics
- Algebras and coalgebras

## 3.2 Research statement

During the last years, my main research interests have been regarded the study of models and formal verification for *Service Oriented Computing*. Service Oriented Computing (SOC) is more and more considered an evolutionary paradigm to build wide area distributed systems and applications, the so-called *Service Oriented Applications* (SOA). SOC takes services as the basic building blocks of SOAs. Services are distributed and can be dynamically composed to provide new services. The SOC paradigm has to face several challenges like service composition and adaptation, negotiation and agreement, monitoring and security.

I consider of fundamental importance to develop formal machineries which can model SOC and describe/analyse SOAs. Indeed, formal methods can be fruitfully exploited for deploying and verifying such applications. The directions along which I develop my research are languages and verification of SOAs and models for SOC.

**Languages** Among other research activities, I am interested in a key issue of the SOC paradigm which is *application-level QoS* that specify both client requirements and service properties in terms of non-functional properties concerning issues like availability, security, and so on. In particular, I am participating to the definition of $\mathcal{K}oS$ a process calculus modelling SOC and based on KLAIM [5] which handles QoS values as first class entities. In $\mathcal{K}oS$, QoS values are abstracted by means of *c-semirings* (after *constraint semirings*). C-semirings were originally proposed to describe and program constraints problems; their algebraic structures is particularly suitable for uniformly modelling several QoS aspects [17, 23] since they provide a choice and a composition operation for handling QoS values [3, 4].

**Models** Apart from being the basis for behavioural checking, HD-automata also constitute a model for concurrent mobile systems expressed with nominal calculi. Indeed, HD-automata can be viewed as a syntax-free model for nominal calculi and have been shown a suitable automata-based model for representing Petri nets, CCS with causality and localities and some versions of $\pi$-calculus [16, 22].

Different versions of HD-automata have been defined. The simplest version can be easily translated to ordinary automata, but possibly with a larger number of states. In a second version, the states are equipped with name symmetries which further reduce the size of the automata. I am recently working on a further instantiation of HD-automata suitable for symbolic techniques [11] that seem promising for efficient model cheeking.

I am also developing a graph model based on *synchronised hyperedge replacement* [7, 9, 24] (SHR). The rewriting mechanism of SHR yields a declarative specification formalisms for distributed computing. The SHR has been used for giving semantics to several nominal calculi [7, 4] showing its adequacy in representing

many facets of SOC computing. Recently, I have extended SHR along some direction providing sophisticate synchronisation policies in a uniform formal framework. In [15], SHR has been equipped with the possibility of expressing many synchronisation policies in the same context. In [14] the SHR mechanism has been equipped with application-level QoS features exploiting the algebraic structure of QoS values in the synchronisations. Finally, in [13] a modal logic for SHR and QoS has been described.

**Verification** Another field I am interested in is the verification of SOAs. I have been working in this area from his PhD studies and is basically divided in two complementary topics: $(i)$ behavioural checking and $(ii)$ model checking.

The former is based on *History-Dependent automata* (HD-automata) [18, 19, 21], an automata-model for nominal calculi (e.g., $\pi$-calculus, KLAIM) which explicitly handles names and fresh name generation. Recently, HD-automata have been equipped with a theory based on coalgebras, which extends the coalgebraic approach to nominal calculi and guarantees the existence of the minimal automaton [20, 6]. Such results have lead to the realisation of several verification toolkits such as Mihda [8, 10] which implements the partitions refinement algorithm on HD-automata thus providing a toolkit for behavioural equivalence checking.

The coalgebraic setting allows the partition refinement algorithm to be uniformly used for nominal calculi and behavioural equivalences [12].

During my career I developed a model checking-based technique and tools for verifying cryptographic protocols [2, 1]. I intend to export the model checking techniques to automata-like models of SOC paradigm. In particular, I aim at tailoring model checking for HD-automata, so that the verification of properties can be efficiently performed by exploiting the capacity of HD-automata of explicitly handling names.

# References


[1] Giacomo Baldi, Andrea Bracciali, Gianluigi Ferrari, and Emilio Tuosto. A Coordination-based Methodology for Security Protocol Verification. In Nadia Busi, Roberto Gorrieri, and Fabio Martinelli, editors, *International Workshop on Security Issues with Petri Nets and other Computational Models*, volume 121 of *Electronic Notes in Theoretical Computer Science*, pages 23–46, Bologna (Italy), June 26 2004, 2005. Elsevier.

[2] Andrea Bracciali, Antonio Brogi, Gianluigi Ferrari, and Emilio Tuosto. Security and Dynamic Compositions of Open Systems. In Hamid R. Arabnia, editor, *Conference on Parallel and Distributed Processing Techniques and Applications*, volume 3, pages 1372 – 1377, Las Vegas (Nevada - USA), June 24-27, 2002. CSREA Press.

[3] Rocco De Nicola, Gianluigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A Formal Basis for Reasoning on Programmable QoS. In Nachum Dershowitz, editor, *International Symposium on Verification – Theory and Practice – Honoring Zohar Manna's 64th Birthday*, volume 2772 of *Lecture Notes in Computer Science*, pages 436–479. Springer-Verlag, 2003.

[4] Rocco De Nicola, Gianluigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A Basic Calculus for Modelling Service Level Agreements. In Jean-Marie Jacquet and Gian Pietro Picco, editors, *International Conference on Coordination Models and Languages*, volume 3454 of *Lecture Notes in Computer Science*, pages 33 – 48. Springer-Verlag, April 2005.

[5] Rocco De Nicola, Gianluigi Ferrari, and Rosario Pugliese. KLAIM: A kernel language for agents interaction and mobility. *IEEE/ACM Transactions on Networking*, 24(5):315–330, 1998.

[6] Gianluigi Ferrari, Ugo Montanari, and Marco Pistore. Minimizing Transition Systems for Name Passing Calculi: A Co-algebraic Formulation. In Mogens Nielsen and Uffe Engberg, editors, *FOSSACS 2002*, volume 2303 of *Lecture Notes in Computer Science*, pages 129–143. Springer-Verlag, 2002.

[7] Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. A LTS Semantics of Ambients via Graph Synchronization with Mobility. In *Italian Conference on Theoretical Computer Science*, volume 2202 of *Lecture Notes in Computer Science*, Torino (Italy), October 4-6, 2001. Springer-Verlag.

[8] Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. From Co-algebraic Specifications to Implementation: The Mihda toolkit. In Frank S. de Boer, Marcello M. Bonsangue, Susanne Graf, and Willem P. de Roever, editors, *Symposium on Formal Methods for Components and Objects*, volume 2852 of *Lecture Notes in Computer Science*, pages 319 – 338, Leiden (Netherlands), November 5-8, November 2002. Springer-Verlag.

[9] Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Graph-based Models of Internetworking Systems. In Tom Aichernig, Bernhard K. Maibaum, editor, *Formal Methods at the Crossroads: from Panaces to Foundational Support*, volume 2757 of *Lecture Notes in Computer Science*, pages 242 – 266. Springer-Verlag, 2003.

[10] Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Coalgebraic Minimisation of HD-automata for the $\pi$-Calculus in a Polymorphic $\lambda$-Calculus. *Theoretical Computer Science*, 331:325–365, 2005.

[11] Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Model Checking for Nominal Calculi. In Vladimiro Sassone, editor, *Foundations of Software Science and Computation Structures*, volume 3441 of *Lecture Notes in Computer Science*, pages 1–24. Springer-Verlag, 2005. Invited paper to the ETAPS 2005 of Ugo Montanari.

[12] Gianluigi Ferrari, Ugo Montanari, Emilio Tuosto, Björn Victor, and Kidane Yemane. Modelling and Minimising the Fusion Calculus Using HD-Automata. In *CALCO2005*, 2005. To appear.

[13] Dan Hirsch, Alberto Lluch-Lafuente, and Emilio Tuosto. A Logic for Application Level QoS. Submitted for publication, 2005.

[14] Dan Hirsch and Emilio Tuosto. SHReQ: A Framework for Coordinating Application Level QoS. In *3rd IEEE International Conference on Software Engineering and Formal Methods*. ieee, 2005. To appear.

[15] Ivan Lanese and Emilio Tuosto. Synchronized Hyperedge Replacement for Heterogeneous Systems. In Jean-Marie Jacquet and Gian Pietro Picco, editors, *International Conference on Coordination Models and Languages*, volume 3454 of *Lecture Notes in Computer Science*, pages 220 – 235. Springer-Verlag, April 2005.

[16] Robin Milner, Joachim Parrow, and David Walker. A Calculus of Mobile Processes, I and II. *Information and Computation*, 100(1):1–40,41–77, September 1992.

[17] Mehryar Mohri. Semiring frameworks and algorithms for shortest-distance problems. *Journal of Automata Languages and Combinatorics*, 7(3):321–350, 2002.

[18] Ugo Montanari and Marco Pistore. Checking Bisimilarity for Finitary $\pi$-Calculus. In Insup Lee and Scott A. Smolka, editors, *International Conference in Concurrency Theory*, volume 962 of *Lecture Notes in Computer Science*, pages 42–56, Philadelphia, PA, USA, August 1995. Springer-Verlag.

[19] Ugo Montanari and Marco Pistore. History Dependent Automata. Technical report, Computer Science Department, Università di Pisa, 1998. TR-11-98.

[20] Ugo Montanari and Marco Pistore. $\pi$-Calculus, Structured Coalgebras, and Minimal HD-Automata. In Mogens Nielsen and Branislav Roman, editors, *Mathematical Foundations of Computer Science*, volume 1983 of *Lecture Notes in Computer Science*, pages 569–578. Springer-Verlag, 2000. An extended version will be published on Theoretical Computer Science.

[21] Marco Pistore. *History Dependent Automata*. PhD thesis, Computer Science Department, Università di Pisa, 1999.

[22] Davide Sangiorgi and David Walker. *The $\pi$-Calculus: a Theory of Mobile Processes*. Cambridge University Press, 2002.

[23] George Theodorakopoulos and John S. Baras. Trust Evaluation in AdHoc Networks. In *WiSe '04: Proceedings of the 2004 ACM workshop on Wireless security*, pages 1–10. ACM Press, 2004.

[24] Emilio Tuosto. Tarzan: Communicating and Moving in Wireless Jungles. In Aantonio Cerone and Alessandra Di Pierro, editors, *2nd Workshop on Quantitative Aspects of Programming Languages*, volume 112 of *Electronic Notes in Theoretical Computer Science*, pages 77–94. Elsevier, January 2005.

## 3.3 Developed Tools

As part of my research activity, I am contributing to the definition and implementation of the following tools and prototypes:

From 11/2001 to 05/2002 Mihda, a toolkit for minimizing history dependent automata. Mihdais implemented in OCAML and has been adopted in the European Project **PROFUNDIS** as the *partition refinement* tool for minimizing $\pi$-calculus and Fusion calculus systems.

From 10/2003 ASPASYA, a tool for the analysis of cryptographic protocols. ASPASYA has been adopted in the Italian project **SP4** for specifying and verifying cryptographic protocols in a real case study.

From 11/2003 GREEDY, a graphical editor for SHR.

From 07/2004 JTWS, a Java implementation of APIs for programming long-running transactions in Web Services.

## 3.4 Short term visits to research centers

1999 (*November*) Computer Science Department of Université VII Paris: seminar on a logical framework for a cryptographic calculus.

2000 (*January*) CWI (Amsterdam): seminar on Klaim.

2001 (*March*) SRI-International (Menlo Park, California, USA): seminar on formal verification of cryptographic protocols.
(*June*) MSR (Microsoft Research Center - Cambridge, UK): seminar su SHR.
(*October*) IRST (Trento, Italy): meeting on the implementation of minimisation algorithm of HD-automata.

2002 (*April*) INRIA (Sophia Antipolis, Nice, France): seminar on the implementation of minimisation algorithm of HD-automata.
(*May*) Dipartimento di Informatica dell'Università di Udine (Italy): seminar on the implementation of minimisation algorithm of HD-automata.

2003 (*October-November*) Department of Information Technology (Uppsala, Sweden): cooperation with Kidane Yemane and Bjorn Victor on HD-automata.
(*July*) Department of Information Technology (Uppsala, Sweden) cooperation with Kidane Yemane and Bjorn Victor on HD-automata.
(*May*) TLab (Laboratory of "Telecom Italia" in Turin, Italy).

2005 (*2/3 March 2003*) MSR (Microsoft Research Center) - Cambridge (UK).

## 3.5 Activity on research projects

1998-1999 **CONFER2.** "Concurrency and Functions: Evaluation and Reduction"

1999-2001 **TOSCA.** progetto MIUR.

2001-2004 **PROFUNDIS.** "Proofs of Functionality for Mobile Distributed Systems" (EC FET: Global Computing)

2001-2004 **DEGAS.** "Design Environments for Global Applications" (EC FET: Global Computing)

2001-2004 **AGILE.** "Architectures for Mobility" (EC FET: Global Computing)

2001-2002 **COMETA.** "Computational Metamodels"

2002-2003 **NAPOLI.** "Network Aware Programming - Objects, Languages, Implementations"

2002-2003 **SP4.** Progetto MIUR

2001-2002 **NAPI.** "Network Aware Programming Interoperability" (Microsoft Research Cambridge)

## 3.6 Reviewing activity

I have reviewed papers for the following journals, conferences and workshops:

| | |
|---|---|
| **WITS01** | (11th Workshop on Information Technology and Systems) |
| **ICATPN01** | (22nd International Conference on Application and Theory of Petri Nets) |
| **CONCUR02** | (13th International Conference on Concurrency Theory) |
| **LICS02** | (Symposium on Logic in Computer Science) |
| **TCS02** | (Theoretical Compur Science Conference) |
| **CSFW14** | (14th Computer Security Foundation Workshop) |
| **ESOP03** | (European Symposium on Programming) |
| **FACS03** | (Formal Aspects of Component Software) |
| **FGC03** | (Foundations of Global Computing) |
| **ICALP03** | (International Colloquium on Automata, Languages and Programming) |
| **ICTCS03** | (Italian Conference on Theoretical Computer Science) |
| **LICS03** | (Symposium on Logic in Computer Science) |
| **QSIC03** | (Quality Software International Conference ) |
| **COORDINATION04** | (Coordination Models and Languages) |
| **FOSSACS04** | (Foundations of Software Science and Computation Structures) |
| **WRLA04** | (Workshop on Rewriting Logic and its Applications) |
| **WS-FM04** | (1st Workshop on Web Services and Formal Methods) |
| **FOSSACS05** | (Foundations of Software Science and Computation Structures) |
| **COORDINATION05** | (Coordination Models and Languages) |
| **CSFW18** | (18th Computer Security Foundation Workshop) |
| **FMOODS05** | (7th Ifip International Conference on Formal Methods for Open Object-Based Distributed Systems) |
| **CALCO05** | (First Conference on Algebra and Coalgebra in Computer Science) |
| **CCS** | (12th ACM Conference on Computer and Communication Security) |
| **CONCUR05** | (16th International Conference on Concurrency Theory) |
| **SEFM05** | (3rd IEEE International Conference on Software Engineering and Formal Methods) |
| **ICTCS05** | (9th Italian Conference on Theoretical Computer Science) |
| **SAS05** | (12th International Static Analysis Symposium) |
| **WS-FM05** | (2nd Workshop on Web Services and Formal Methods) |

## 3.7 Organizing activities

### 3.7.1 Conferences

Local organizer of International Conference **Coordination 2004**, Pisa, 24-27 February 2004

### 3.7.2 Workshop

Local organizer of International Workshop **Web Services and Formal Methods (WS-FM 2004)**, Pisa 23-24 February 2004.

# 4 Academic Teaching

## 4.1 Courses

From 26/07/2004 to 31/07/2004 course "Verification for Mobile Systems" for la Escuela de Ciencias Informaticas. Departamento de Computacion, Facultad de Ciencias Exactas y Naturales. Universidad de Buenos Aires, Argentina.

From 23/02/2003 to 20/05/2003 lectures on functional programming for the Computer Architectures course (Dipartimento di Matematica dell'Universita' di Pisa).

From 18/04/2002 to 24/05/2002 Computer Architectures laboratory (Dipartimento di Matematica dell'Universita' di Pisa).

From 01/10/2001 to 18/12/2001 Network Programming laboratory (Dipartimento di Informatica dell'Universita' di Pisa).

From 19/02/2001 to 23/03/2001 lectures on concurrent and network programming in Java (IFTS course Pescia, PT - Italy).

### 4.2 Master thesis Supervisions

I have co-supervised the master thesis of

Giacomo Baldi
"Security protocol verification by means of symbolic model checking"
Supervisors: Andrea Bracciali, Gianluigi Ferrari and **Emilio Tuosto**

Daniele Strollo
"Composizionalità di transazioni e Web Services nell'ambito della telefonia mobile"
Supervisors: Robert Bruni, Gianluigi Ferrari, Enrico Morello and **Emilio Tuosto**

### 4.3 Bachelor thesis Supervisions

I have co-supervised the bachelor thesis of

Emilio Italiano
"Gredy: an editor for shr grammars"
Tutors: Gianluigi Ferrari and **Emilio Tuosto**

Fabio Meini
"Sito per la gestione di riferimenti bibliografici"
Tutors: Roberto Bruni and **Emilio Tuosto**

## 5 Curriculum studiorum

1989 Scientific secondary school Diploma.

1998 (*17 July*) Master thesis in **Scienze dell'informazione**, Faculty of Scienze Matematiche Fisiche e Naturali dell'Università di Pisa. The title of the thesis is

Semantica e Pragmatica di un Linguaggio di Coordinamento di Attività su Reti;

the thesis has been supervised by Prof. Rocco De Nicola and Prof. Gianluigi Ferrari.

2003 (*5 Maggio*) PhD thesis defense in the Dipartimento di Informatica dell'Università di Pisa. The title of the thesis is

Non-Functional Aspects of Wide Area Network Programming.

The thesis has been supervised by Prof. Gianluigi Ferrari and has been reviewed by

- Prof. Rance Cleaveland (Department of Computer Science - State University of New York at Stony Brook)
- Prof. Joshua Guttman (MITRE Corp., USA).

The thesis has been approved by the Italian national committee:

- Prof. Rocco De Nicola (President)
- Prof. Alan Bertossi, (Member)
- Prof. Paolo Ciancarini (Member).

### 5.1 Attended schools

1998 **Scuola estiva di logica**. Cesena, 15-19/09/1997. Società italiana di logica e filosofia della scienza.
*Organiser:* G. Rosolini (Università di Genova).

1999 **SNDIS99**. Scuola Nazionale dei Dottorati di Informatica della Facoltà di Scienze, Bertinoro (FO) 17 - 28/05/1999.
*Organiser:* Mariangiola Dezani (Università di Torino).

1999 **Type Summer School** Giens (France) 30-08/10-10/1999.
*Organiser:* J. Despeyroux (INRIA)

2000 **Algebraic and Coalgebraic Methods in the Mathematics of Program Construction** Oxford 10-14/04/2000.
*Organiser:* R. Backhouse (University of Nottingham).
**E-Commerce and On-Line Algorithm** Lipari (Messina - Italy) 10 - 22/06/2000.
*Organiser:* A. Ferro (Università di Catania)

2001 **Foundations of Wide Area Network Programming** Lipari (Messina - Italy) 01-14/06/2001.
*Organiser:* U. Montanari (Università di Pisa)

2002 **Foundations of Security Analysis and Design** Bertinoro (FO) 23-27/09/2002.
*Organiser:* R. Gorrieri
**School of Model Checking** Bertinoro (FO) 9-14/09/2002.
*Organiser:* M. Bernardo (Università di Urbino)

## 6 Publications

### PhD Thesis

1. Emilio Tuosto. *Non-Functional Aspects of Wide Area Network Programming*. PhD thesis, Dipartimento di Informatica, Università di Pisa - Italy, May 2003. TD-8/03, SEU-Servizio Editoriale Universitario di Pisa. Available at `http://www.di.unipi.it/phd/tesi/tesi\_2003/PhDthesis\_Tuosto.ps.gz`.

### International Journals

2. Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Coalgebraic Minimisation of HD-automata for the $\pi$-Calculus in a Polymorphic $\lambda$-Calculus. *Theoretical Computer Science*, 331:325–365, 2005.

## International Electronic Journals

3. Emilio Tuosto and Hugo T. Vieira. An observational model for spatial logics. In *First International Workshop on Views On Designing Complex Architectures*, Electronic Notes in Computer Science, Elsevier. September 2004. To appear.

4. Giacomo Baldi, Andrea Bracciali, Gianluigi Ferrari, and Emilio Tuosto. A Coordination-based Methodology for Security Protocol Verification. In Nadia Busi, Roberto Gorrieri, and Fabio Martinelli, editors, *International Workshop on Security Issues with Petri Nets and other Computational Models*, volume 121 of *Electronic Notes in Theoretical Computer Science*, pages 23–46, Bologna (Italy), June 26 2004, 2005. Elsevier.

5. Emilio Tuosto. Tarzan: Communicating and moving in wireless jungles. In *2nd Workshop on Quantitative Aspects of Programming Languages*, Electronic Notes in Computer Science. Elsevier, March 2004.

6. Andrea Bracciali, Antonio Brogi, Gianluigi Ferrari, and Emilio Tuosto. Security issues in component based design. In Ugo Montanari and Vladimiro Sassone, editors, *ConCoord: International Workshop on Concurrency and Coordination*, volume 54 of *Electronic Notes in Computer Science*, Lipari Island - Italy, July 2001. Elsevier.

## Conference Proceedings

7. Dan Hirsch and Emilio Tuosto. SHReQ: A Framework for Coordinating Application Level QoS. In *3rd IEEE International Conference on Software Engineering and Formal Methods*. ieee, 2005. To appear.

8. Gianluigi Ferrari, Ugo Montanari, Emilio Tuosto, Björn Victor, and Kidane Yemane. Modelling and Minimising the Fusion Calculus Using HD-Automata. In *CALCO2005*, 2005. In José Luiz Fiadeiro, Neal Harman, Markus Roggenbach and Jan Rutten, editors, *First Conference on Algebra and Coalgebra in Computer Science*, volume 3629 of *Lecture Notes in Computer Science*, pages 142 – 156. Springer-Verlag, September 2005 ISBN: ?-???-?????-?

9. Rocco De Nicola, Gianluigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A Basic Calculus for Modelling Service Level Agreements. In Jean-Marie Jacquet and Gian Pietro Picco, editors, *International Conference on Coordination Models and Languages*, volume 3454 of *Lecture Notes in Computer Science*, pages 33 – 48. Springer-Verlag, April 2005. ISBN: 3-540-25630-X

10. Ivan Lanese and Emilio Tuosto. Synchronized Hyperedge Replacement for Heterogeneous Systems. In Jean-Marie Jacquet and Gian Pietro Picco, editors, *International Conference on Coordination Models and Languages*, volume 3454 of *Lecture Notes in Computer Science*, pages 220 – 235. Springer-Verlag, April 2005. ISBN: 3-540-25630-X

11. Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Model Checking for Nominal Calculi. In Vladimiro Sassone, editor, *Foundations of Software Science and Computation Structures*, volume 3441 of *Lecture Notes in Computer Science*, pages 1–24. Springer-Verlag, 2005. ISBN: 3-540-25388-2

12. Gianluigi Ferrari, Stefania Gnesi, Ugo Montanari, Roberto Raggi, Gianluca Trentanni, and Emilio Tuosto. Verification on the web. In Juan Carlos Augusto and Ulrich Ultes-Nitsche, editors, *Verification and Validation of Enterprise Information Systems, 2nd International Workshop on Verification and Validation of Enterprise Information Systems, VVEIS 2004*, pages 72 – 74, Porto, Portugal, April 2004. INSTICC Press. In conjunction with ICEIS 2004. ISBN: 972-8865-03-1.

13. Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. From co-algebraic specifications to implementation: The Mihda toolkit. In Frank S. de Boer, Marcello M. Bonsangue, Susanne Graf, and Willem P. de Roever, editors, *Second International Symposium on Formal Methods for Components and Objects*, volume 2852 of *Lecture Notes in Computer Science*, pages 319 – 338. Springer-Verlag, November 2002. ISBN: 3-540-20303-6.

14. Andrea Bracciali, Antonio Brogi, Gianluigi Ferrari, and Emilio Tuosto. Security and dynamic compositions of open systems. In *PDPTA 2002*, pages 1372 – 1377, 2002. ISBN: 1-892512-89-0.

15. Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. A LTS semantics of ambients via graph synchronization with mobility. In *7th Italian Conference on Theoretical Computer Science – ICTCS'01*, volume 2202 of *Lecture Notes in Computer Science*. Springer-Verlag, 2001. ISBN: 3-540-42672-8.

16. GianLuigi Ferrari and Emilio Tuosto. A debugging calculus for mobile ambients. In *Proceedings of the 2001 ACM symposium on Applied computing*. ACM Press, 2001. ISBN: 1-58113-287-5.

17. Emilio Tuosto. An ada95 implementation of a network coordination language with code mobility. In M. G. Harbour and J. A. de la Puente, editors, *Intl. Conference on Reliable Software Technologies - Ada-Europe'99*, volume 1622 of *Lecture Notes in Computer Science*, pages 199–210, Santander, Spain, June 1999. Springer-Verlag. ISBN: 3-540-66093-3.

## Book Chapters

18. Lorenzo Bettini, Viviana Bono, Rocco De Nicola, Gianluigi Ferrari, Daniele Gorla, Michele Loreti, Eugenio Moggi, Rosario Pugliese, Emilio Tuosto, and Betti Venneri. The klaim project: Theory and practice. In Corrado Priami, editor, *Global Computing: Programming Environments, Languages, Security and Analysis of Systems*, number 2874 in *Lecture Notes in Computer Science*, pages 88 – 150. Springer-Verlag, 2003. ISBN: 3-540-20583-7.

19. Gianluigi Ferrari, Ugo Montanari, and Emilio Tuosto. Graph-based models of internetworking systems. In Tom Aichernig, Bernhard K. Maibaum, editor, *Formal Methods at the Crossroads: from Panaces to Foundational Support*, Lecture Notes in Computer Science, pages 242 – 266. Springer-Verlag, 2003. ISBN: 3-540-20527-6.

20. Rocco De Nicola, Gianluigi Ferrari, Ugo Montanari, Rosario Pugliese, and Emilio Tuosto. A Formal Basis for Reasoning on Programmable QoS. In Nachum Dershowitz, editor, *International Symposium on Verification – Theory and Practice – Honoring Zohar Manna's 64th Birthday*, Lecture Notes in Computer Science. Springer-Verlag, 2003. ISBN: 3-540-21002-4.

## Workshops

21. Roberto Bruni, Gianluigi Ferrari, Hernán Melgratti, Ugo Montanari, Daniele Strollo, and Emilio Tuosto. Java Transactional Web Services: from theory to practice in compensable, distributed long-running transactions. WS-FM05, 2005. To appear.

22. Gianluigi Ferrari, Rosario Pugliese, and Emilio Tuosto. Calculi for network aware programming. In Antonio Corradi, Andrea Omicini, and Agostino Poggi, editors, *Workshop on agents 2000: Dagli oggetti agli agenti*. Pitagora Editrice Bologna, Parma - Italy, 29-30 May 2000, AIIA-TABOO edition, May 2000. ISBN: 88-371-1195-9.

## Technical Reports

23. Gianluigi Ferrari and Emilio Tuosto. Resources negotiation in systems of mobile components. Technical Report TR-04-01, Dipartimento di Informatica, Università di Pisa, Italy, January 2004. Available at `http://www.di.unipi.it/ricerca/TR/tr.html`.

24. Ugo Montanari and Emilio Tuosto. A logical framework for the spi calculus. Technical Report TR-04-02, Dipartimento di Informatica, Università di Pisa, Italy, January 2004. Available at `http://www.di.unipi.it/ricerca/TR/tr.html`.

25. Emilio Tuosto, Björn Victor, and Kidane Yemane. Polyadic history-dependent automata for the fusion calculus. Technical Report 2003-62, Department of Information Technology, Uppsala, Sweden, December 2003. Available at `http://www.it.uu.se/research/reports/`.

## Submitted for Publication

26. Dan Hirsch, Alberto Lluch-Lafuente, and Emilio Tuosto. A Logic for Application Level QoS. 2005.

Pisa, July 19, 2005

Emilio Tuosto