**CURRICULUM VITAE**
**Formato Europeo/European Format**
**(2005-present)**

## Personal information

| | |
|---|---|
| Surname(s) / First name(s) | **Pedicini, Marco** |
| Address(es) | Department of Mathematics and Physics, Roma Tre University |

## Work Experience

| | |
|---|---|
| (2013) | ASN National Scientific Qualification as Full Professor in 01/A1 Mathematical logic, mathematics education and history of mathematics; |
| (2012-present) | Associate Professor of Computer Science (SSD INF/01) Roma Tre University, (selection published on Gazzetta Ufficiale n. 32 of 22/04/2008, qualification registered on Dean Act 29/10/2010); |
| (2012-present) | Research Associate of Computer Science of Italian CNR at Istituto per le Applicazioni del Calcolo “Mauro Picone”, Roma; |
| (1992-2012) | CNR-researcher, CNR registration number n. 00015, level III, Istituto per le Applicazioni del Calcolo “Mauro Picone”, Roma; |
| (2010-2013) | scientific consultant of E-Security srl for Supercomputer Project XASMOS - distributed infrastructure for computer security; |
| (2003-2005) | chief of scientific organization of Araknos srl (Via Boezio 6, Rome), company specialised in computer security; I was involved in activities on Open Source Software, and in supporting the definition of research projects concerning computer security. |

## Education and Training

| | |
|---|---|
| (1999) | PhD (date of defence 15 January 1999), at Equipe de Logique Mathématique of the University Paris 7, title of thesis *Exécution et Programmes*, thesis supervisor J.-Y. Girard; |
| (1992) | DEA Logique et Fondements de l’Informatique, at University Paris 7, title of the master degree memory: *Schémas Principaux et Réseaux de Preuves*, supervisor J. van de Wiele; |
| (1991) | Laurea of Mathematical Sciences at University of Rome “La Sapienza”, title of the “tesi di laurea”: *Lambda Calcolo Puro, Reti di Dimostrazione e Riduzione di Testa*, thesis supervisor C. Böhm co-supervisor G.F. Mascari. |

## Research Activities

| | |
|---|---|
| Research sectors | My research interests are in theoretical computer science. In particular, my researches range in the fields of Logic in Computer Science, Computational Methods for Systems Biology, Computational Number Theory, Cryptography and Cryptanalysis. Albeit this whole activity falls in the area of Theoretical Computer Science, it achieves in interdisciplinary research its own specificity. Interactions with other disciplines are the key to evaluating my activity. I developed a special kind of expertise while linking theoretical results with practical issues in the development of advanced applications for computer science. |
| Recent Scientific Activities. | |
| (2019-present) | MEMBER OF SCIENTIFIC COMMITTEE Book Series “Cryptography” Aracne Publisher; |
| (2020-2023) | PRINCIPAL INVESTIGATOR of Subcontract “Modellazione computazionale nei sistemi biologici” of Workpackage 5 “Modelling and Simulation” of H2020-JTI-IMI2- “ERA4TB - European Tuberculosis Regimen Accelerator” (GA n. 85398); |
| (June 2019) | VISITING PROFESSOR, Scuola Normale Superiore di Pisa; |
| (March-April 2019) | VISITING PROFESSOR, Simons Institute for the Theory of Computing, Berkeley University; |
| (2019-present) | Member of the doctoral school, Dept. Mathematics and Physics, Roma Tre University; |

(2012-2016) PRINCIPAL INVESTIGATOR of Research Unit at Roma Tre University of the Project MIUR-PRIN2010-2011, Metodi logici per il trattamento dell'informazione;

(2013-2016) PARTICIPANT to the Project UE Strep FP7-ICT-2011-9 (MISSION-T2D) – Multiscale Immune System SImulator for the Onset of Type 2 Diabetes integrating genetic, metabolic and nutritional data;

(2010-2012) PRINCIPAL INVESTIGATOR of the section "INT.P01.007.006 *Applied cryptography: analysis and performance of cryptographic primitives*", Istituto per le Applicazioni del Calcolo in the sub-project "INT.P01.007 Trustworthy and Secure Future Internet" of the CNR National Project "INT.P01 Security";

(2008-2009) Member of the doctoral school, Dept. Mathematics, Roma Tre University;

(2008-2010) PRINCIPAL CO-INVESTIGATOR, Project "CONCERTO: Controllo e certificazione dell'uso delle risorse" (MIUR-PRIN2007);

(2005-2006) PARTICIPANT, Project "FOLLIA: Fondazioni Logiche di Linguaggi Astratti di Programmazione" (MIUR-COFIN2005);

(2007-2009) PARTICIPANT, Project EUFP6/2005/NEST-PATH Contract No IST-2006-043241 (Complexdis) "Unravelling complex diseases with complexity theory: from networks to the bedside";

(2006-2007) PRINCIPAL INVESTIGATOR (for the italian part) of the CNR/CNRS Project "Interaction and Complexity" (O. Laurent was the french principal investigator).

## Publications

(2019) CIANFRIGLIA M, GUARINO S, BERNASCHI M, LOMBARDI F, PEDICINI M. (2019) Kite attack: reshaping the cube attack for a flexible GPU-based maxterm search, pp. 1 – 18, Journal of Cryptographic Engineering, Springer Berlin Heidelberg; doi:10.1007/s13389-019-00217-3;

(2019) LAI A C, PEDICINI M, PIAZZA M. (2019) Abstract Machines, Optimal Reduction, and Streams, pp. 1 – 32, Mathematical Structures in Computer Science, Cambridge University Press (CUP); doi:10.1017/s096012951900001x;

(2019) PEDICINI M, PIAZZA M. (2017) What Arrow's Information Paradox Says (To Philosophers), On the Cognitive, Ethical, and Scientific Dimensions of Artificial Intelligence, pp. 83 – 94, Springer Berlin Heidelberg, ISBN: 9783030018009, doi:10.1007/978-3-030-01800-9_5;

(2018) PEDICINI M, PIAZZA M. (2017) Kálmar elementary complexity and von Neumann algebras Panamerican Mathematical Journal, Volume 28, Issue 4, pp. 1 – 28;

(2018) CASTIGLIONE F, MANCINI E, PEDICINI M, JARRAH A S. (2018) Quantitative Modeling Approaches, in Reference Module in Life Sciences, Elsevier, 2018, ISBN 9780128096338;

(2018) PEDICINI M, PALUMBO M C, CASTIGLIONE F. (2018) Computing Hierarchical Transition Graphs of Asynchronous Genetic Regulatory Networks. In: Pelillo M., Poli I., Roli A., Serra R., Slanzi D., Villani M. (eds) Artificial Life and Evolutionary Computation. WIVACE 2017. Communications in Computer and Information Science, vol 830, pp 88-103. Springer;

(2017) CIANFRIGLIA M, GUARINO S, BERNASCHI M, LOMBARDI F, PEDICINI M. (2017) A Novel GPU-Based Implementation of the Cube Attack, In: Gollmann D., Miyaji A., Kikuchi H. (eds) Applied Cryptography and Network Security. ACNS 2017. Lecture Notes in Computer Science, vol 10355. Springer, Cham doi:10.1007/978-3-319-61204-1_10;

(2017) KOMORNIK V, PEDICINI M. (2017) Critical Bases For Ternary Alphabets, Acta Mathematica Hungarica, Volume 152, Issue 1, pp. 25-57, Springer-Verlag;

(2017) KOMORNIK V, PEDICINI M, PETHŐ A. (2017) Multiple common expansions in non-integer bases, Acta Sci. Math. (Szeged) 83 (2017), p. 51–60;

(2016) LAI A. C, PEDICINI M, ROGNONE S. (2016) Quantum Entanglement and the Bell matrix, July 2016, Volume 15, Issue 7, pp 2923-2936, Quantum Information Processing

(2015) CANAVESE D, CESENA E, OUCHARY R, PEDICINI M, ROVERSI L. (2015) Light combinators for finite fields arithmetics, 111, 365–394, Science of Computer Programming;

(2014) CANAVESE D, CESENA E, OUCHARY R, PEDICINI M, ROVERSI L. (2014) Can a light typing discipline be compatible with efficient implementation of finite field inversion ? In Foundational and Practical Aspects of Resource Analysis Third International Workshop, FOPARA 2013, Bertinoro, Italy, August 29-31, 2013, Revised Selected Papers, Lecture Notes in Computer Science n. 8552, pp. 38–57 Springer-Verlag Berlin Heidelberg;

(2012) CESENA E, PEDICINI M, ROVERSI L. (2012) Typing a Core Binary-Field Arithmetic in a Light Logic. In R. Peña, M. van Eekelen, and O. Shkaravska (Eds.): FOPARA 2011, Lecture Notes in Computer Science n. 7177, pp. 19–35, Springer-Verlag Berlin Heidelberg;

(2011) AGNESSE A, PEDICINI M. (2011) Cube attack in finite fields of higher order. In: Australasian Information Security Conference 2011, Conferences in Research and Practice in Information Technology. Perth, Australia, 17 - 20/1/2011, SIDNEY: Australian Computer Society., vol. 116

(2011) CLANCY T, PEDICINI M., CASTIGLIONE F, SANTONI D, NYGAARD V, LAVELLE T. J, BENSON M, HOVIG E (2011). Immunological network signatures of cancer progression and survival. BMC MEDICAL GENOMICS, vol. 4:28, ISSN: 1755-8794, doi:10.1186/1755-8794-4-28

(2011) KOMORNIK V, LAI A. C, PEDICINI M. (2011). Generalized golden ratios of ternary alphabets. JOURNAL OF THE EUROPEAN MATHEMATICAL SOCIETY, vol. 13(4); p. 1113-1146, ISSN: 1435-9855, doi:10.4171/JEMS/277

(2010) PEDICINI M., PIAZZA M (2010). An application of von Neumann Algebras to compurtational complexity. In: New Essays In Logic and Philosophy of Science. Milan, 8-10 Ottobre 2007, LONDON: College Publications, vol. 1, p. 183-194, ISBN/ISSN: 9781848900035

(2010) CASTIGLIONE F, SANTONI D, PEDICINI M. (2010). Implementing agent's rules with gene regulatory networks in mesoscopic-level models of cellular interactions. In: GABRIEL P. C. FUNG. A PRACTICAL GUIDE TO BIOINFORMATICS ANALYSIS. ANNERLEY: iConcept Press Pty Ltd., ISBN/ISSN: 978-0-9807330-2-0

(2010) PEDICINI M., BARRENÄS F, CLANCY T, CASTIGLIONE F, HOVIG E, KANDURI K, SANTONI D, BENSON M (2010). Combining network modeling and gene expression microarray analysis to explore the dynamics of Th1 and Th2 cell regulation. PLOS COMPUTATIONAL BIOLOGY, vol. 6 (12); p. e1001032, ISSN: 1553-734X, doi:10.1371/journal.pcbi.1001032

(2009) PEDICINI M., PIAZZA M (2009). Elementary computation and von Neumann Algebras. vol. arXiv:0912.5342v1, p. 1-22, 29/12/2009

(2008) PEDICINI M., SANTONI D, CASTIGLIONE F (2008). Implementation of a regulatory gene network to simulate the TH1/2 differentiation in an agent-based model of hypersensitivity reactions. BIOINFORMATICS, vol. 24(11); p. 1374-1380, ISSN: 1367-4803

(2007) PEDICINI M., QUAGLIA F (2007). PELCR: Parallel Environment for Optimal Lambda-Calculus Reduction. ACM TRANSACTIONS ON COMPUTATIONAL LOGIC, vol. 8; p. 1-36, ISSN: 1529-3785, doi:10.1145/1243996.1243997

(2007) PEDICINI M., PIAZZA M (2007). Elementary Complexity into the Hyperfinite $II_1$ Factor. In: CiE 2007. Siena, Italy

(2006) COSENTINO A, PEDICINI M., QUAGLIA F (2006). Supporting Function Calls within PELCR. ELECTRONIC NOTES IN THEORETICAL COMPUTER SCIENCE, vol. 135; p. 107-117, ISSN: 1571-0661, doi:10.1016/j.entcs.2005.09.025

(2006) BAILLOT P, PEDICINI M. (2006). An embedding of the BSS model of computation in light affine lambda-calculus. In: LCC'06. Seattle, USA

## Teaching activities

Most of my teaching activity was at University of Roma Tre, Department of Mathematics:

(2017-2020) Computability and Complexity (undergraduate course);

(2010-2020) Algorithms for Cryptography (undergraduate course);

(2017-2018) Programming Languages (undergraduate course);

(2001-2017) Models of Computation (undergraduate course);

(2008-2016) Computational Journalism (undergraduate course);

(2007-2017) Information Theory (undergraduate course).

(2012-2013) Advanced Java Programming (undergraduate course);

(2008-2009) Fundamentals of Computer Science (undergraduate course);

## Additional Information

(1997-present) Research and development of the software **PELCR**: this implementation permits the parallel execution of functional languages on distributed machines;

(2020) Organising Committee with Prof. A. Visconti and Prof. R. La Scala of Cryptanalysis: A Key Tool in Securing and Breaking Ciphers - Tutorial Workshop at ITASEC20;

(2017) Organiser and Program Chair of the International Workshop “Numeration 2017”, in Rome (Department of Mathematics and Physics, Roma Tre University) 5-9 June 2017;

(2008) Organising and Programme Committee with Prof. V. Komornik (University of Strasbourg) and Prof. P. Loreti (University of Rome La Sapienza) of the International Workshop “Dynamical Aspects in Number Systems”, in Rome (CNR Headquarters) 6-7 February 2008;

(2006) Organiser and speaker of Introductory Course to Cryptography and digital signature (10 lectures delivered to the computer systems service of Segretariato Generale della Presidenza della Repubblica, in Rome (Palazzo del Quirinale) 27 - 28 February 2006.

## Trattamento dei dati personali, informativa e consenso

Acconsento alla pubblicazione del mio CV in ottemperanza alle disposizioni di legge dettate in materia di trasparenza (D.Lgs. 33/2013).