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NICOLA GALESI
CURRICULUM VITAE

COGNOME	**GALESI**
NOME	**NICOLA**
DATA DI NASCITA	**29/12/1966**

Luogo e Data: Roma, 12/05/2020

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1 Résumé

Present Position, Research Interests

Nicola is an associate professor in the *Department of Computer Science* of the *University of Rome La Sapienza* in Rome (Italy). His research field is *Theoretical Computer Science*, specialised in *Complexity Theory and Proof Complexity*. His main research interests are about studying the limit of algorithms, proofs and computational models when resources like running-time, memory, randomness or information content are bounded. These are problems closely related to fundamental questions in Computer Science such as the well-known P vs NP problem.

Education

In Dec 1992 he obtained with full mark *cum laude* the master degree in Computer Science at the University of Bari (Italy). After a short research experience at the University of Bari and at SASIAM research center in Tecnopolis (Bari), in 94–95 he started the PhD studies in Barcelona. In 2000, under the advsing of Maria Luisa Bonet, he defended the PhD Thesis in Computer Science with the thesis: "On the Complexity of Propositional Proofs" obtaining a full mark *cum laude*.

Academic Employment

Nicola has been employed in Universities of several countries:

- After the Phd (in 2000), in 2000-2001 he was a researcher member of the *School of Mathematics* at the *Institute for Advanced Studies* in Princeton during the *Special Year in Computational Complexity* led by Avi Wigderson.
- From 2002 to 2003 he was a PostDoc at the *Department of Computer Science* at the *University of Toronto* in Canada, where he worked in the theory group led by Stephen Cook.
- In April 2001 he obtained a position of (tenured) associate professor (*Profesor Titular de Universidad*) in Spain at the *Universitat Politécnica de Catalunya* in Barcelona in the group of Josep Diaz.
- Since 2005 he is an associate professor in the *Department of Computer Science* in the *University of Rome La Sapienza*.
- In 2015 (Fall) he was *visiting scientist at University of California Berkeley* in the *Simons Institute for Theory of Computing*.
- He is annually invited as visiting scientist at the *Institute of Mathematical Logic and Theoretical Computer Science of the Czech Academy of Science* in Prague. In 2016 he was *Invited visiting scientist* at the *Tokyo Institute of Technology*.

In 2013 he obtained an habilitation as full professor in Mathematical Logic in the Italian academic system and he is member of GRIN (Italian Computer Science Group), UMI (Italian Mathematician Association), AILA (Italian Association for Logic and Applications), CCF (Computational Complexity Foundation), EATCS (European Association for Theoretical Computer Science), CiE (Computability in Europe Association).

Scientific Achievements and Awards

Nicola contributed to the research area of Proof Complexity answering several open problems posed among others by A. Razborov and A. Wigderson.

- His paper *Parameterized Bounded-Depth Frege is not Optimal* [J17], written with A. Razborov, obtained the award as *Most Notable papers in Computer Science for 2012* from the ACM Computing Reviews.
- in 2015, together with his PhD student Ilario Bonacina ([C17,J21,C19,J23]) he solved two problems left open by A. Razborov and A. Wigderson in 2000, concerning lower bounds for memory occupation in polynomial reasoning algorithms. His student I. Bonacina obtained in 2015 the EATCS award as best italian PhD thesis in Theoretical Computer Science using these results.
- In older results written with his PhD advisor ([C5],[J6]) he solved a conjecture of A. Wigderson concerning the optimality of certain tradeoffs between two computational measures.

Nicola authored overall around 40 publications in major international top computer science journals like, *Journal of the ACM, Journal of Computer and System Sciences, SIAM Journal of Computing, Information*

and Computation, ACM Transaction on Computation Logic, ACM Transaction on Computation Theory, Random Structures and Algorithms and theory conferences as FOCS, ICALP, CCC, ITCS . He collaborated with around 40 people from all over the world and among others with Alexander Razborov a Rolf Nevanllina Prize, Pavel Pudlák of the Czech Academy of Science and Toni Pitassi of the University of Toronto. Nicola receives each year invitations at international workshops usually held in research centres like Banff, Oberwolfach, Dagstuhl, Princeton, Toronto, Cambridge.

Teaching

Nicola taught widely in Computer Science in Bachelor, Master and PhD degrees and in different international Universities in English, Spanish and Italian.

- At bachelor and master level he has been teaching courses like: Programming, Algorithms, Data Bases, Optimisation, Mathematical Logic, Complexity Theory, Proof Theory, Computability.
- He was invited to deliver a a PhD course in Proof Complexity at the International NoNa Summer School in Complexity Theory at the Steklov Institute in St Petersburg (2009)
- From 2007 to 2016 he has been member of the Italian Ministerial Committee for the Olympiads in Informatics, and he leaded and coached in 2007 and 2008 a Sapienza team of students to participate to the ACM-International Collegiate Programming Contest

Advising

He advised for the final thesis several master students in Computer Science, Mathematics and Physics from University of Rome Sapienza and University of Pisa. He advised three Phd students at Sapienza: Massimo Lauria in 2009 (now Lecturer at Sapienza and former researcher at KTH in Stockholm); Ilario Bonacina in 2015 (now researcher at UPC in Barcelona), Fariba Ranjbar (current, from University of Theran). He advised three Postdoc: Alan Skelley (coming from the University of Toronto, and now at Google Research), Olaf Beyersdorff (coming from TU-Berlin, and now Professor at University of Jena), Massimo Lauria (Assistant professor at Sapienza). Ilario Bonacina in 2016 for his PhD thesis received the prize as best Italian PhD thesis in Theoretical Computer Science of the Italian branch of EATCS.

Grants

He successfully attained international research funding as leading scientist. In 2011, he received as PI a grant of 150000$ from the John Templeton Foundation to carry his research in the 3-years project "Limits on Theorem Proving". In 2013 he was the leading scientist of an integrated Italian-Germany 2-years research project granted by the Italian-German Rector's conferences (CRUI-DAAD Azione Integrata). In 1996 he obtained a 3-years European Marie Curie fellowship, to carry on the PhD studies in Barcelona. In 1995 he obtained a 1-year grant by the Università di Bari to carry on a post-lauream specialization abroad.

Organization, Community Service

Nicola invented and organised international workshops like the *Workshops on Limits of Theorem Proving* held in Rome in 2012, *SAT Interactions* held in Dagstuhl in 2012 and the *Ramsey Theory in Logic, Combinatorics and Complexity I and II, III* held in Bertinoro in 2009 and 2011 and 2018. During the years he served in program committees of theory conferences, including the IEEE Conference on Computational Complexity (CCC),Theory and Applications of Models of Computation (TAMC), Computer Science Logic (CSL), Computability in Europe (CiE), Theory and Applications of Satisfiability Testing (SAT), FSTTCS 17 (Foundations of Software Technologies and Theoretical Computer Science). He was *Publicity Chair* for the EATCS leading conference ICALP 2016, held in Rome. He is in the editorial board of the Journal *Logical Methods in Computer Science* and the *Journal on Satisfiability, Boolean Modelling and Computation* and serves as a reviewer for top journals in Computer Science and Logic (JACM, SICOMP, JSL, Combinatorica, among others) and as reviewer for national grant agencies in Spain, Catalunya and Poland.

University Service

Nicola has been *Head of the PhD school* in his department during 2017-2018 and served in several internal departmental elective committees for several years, ranging from scientific (committee of PhD studies), managerial (restricted dept. committee) and teaching (restricted committee for Computer Science studies). In 2006 and 2015 he was member and chair of the selection committee for the PhD studies in his department. In 2019 he is in the national Committee for the Italian-EATCS award for the best PhD Thesis in Theoretical Computer Science.

Personal Info

Nicola was born in December 1966 in Bari (Italy). He was living and working in Barcelona (Spain), Toronto (Canada), Princeton (USA), Rome (Italy).

2 Education

[May 00] *Ph.D.* in Computer Science. Thesis: *On the Complexity of Propositional Proof Systems* Advisor: Prof. M.L. Bonet. Evaluation: *Summa Cum Laude*. Universitat Politécnica de Catalunya. Barcelona, Spain.

[Dec 92] Laurea (Master with final thesis and dissertation *A sublanguage of LISP: the Primitive Recursive LISP*) in Computer Science. Evaluation: *Summa Cum Laude*. Advisor. S. Caporaso Università degli Studi di Bari. Bari, Italy.

3 Appointments

3.1 Academic Employment after PhD

[Jan 05–] Associate Professor. Department of Computer Science. *University of Rome "La Sapienza"*. Rome, Italy.

[May 01–Dec 04] Associate Professor (Titular de Universidad). Departament de Llenguatges i Sistemes Informatics (Computer Science). *Universitat Politécnica de Catalunya*. Barcelona, Spain.

[Jan 02–Jan 03] Research PostDoc at the Department of Computer Science of the *University of Toronto*. Toronto, Ontario, Canada. On leave from *Universitat Politecnica de Catalunya*.

[Sep 00-May 01] Researcher of the *Institute for Advanced Study. School of Mathematics* (*Special Year in Computational Complexity*). Princeton, New Jersey, USA.

3.2 Academic Employment before and during PhD

[Feb 99–Sep 00] PhD Student and Part-Time Assistant Professor. Departament de Llenguatges i Sistemes Informatics (Computer Science). *Universitat Politecnica de Catalunya*.

[Jan 96–Feb 99] *Marie Curie Fellow* as PhD Student (European Community FP4,TMR programme (under 20). Project title: *A Structural Complexity Approach to Propositional Proof Complexity*) at the Departament de Llenguatges i Sistemes Informatics (Computer Science). *Universitat Politecnica de Catalunya*.

[Oct 94–May 00] PhD Student at Departament de Llenguatges i Sistemes Informatics (Computer Science). *Universitat Politecnica de Catalunya*.

[Jul 93–Oct 94] Assistant Researcher at Department of Computer Science of Università degli Studi di Bari, Bari, Italy (S. Caporaso).

[Jan 93–Jul 93] Researcher at SASIAM (School for Advanced Studies in Industrial and Applied Mathematics) at TECNOPOLIS, CSATA, Valenzano, Bari, Italy (grant by IBM).

3.3 Main appointments as Visiting Scientist

[Jun 16, 1m] Tokyo Institute of Technology. Dept of Computer Science

[Fall 15, 3m] University of California Berkeley. Simons Institute for Theory of Computing

[09–10–12–14–15, 20–30d] Czech Academy of Science. Institute for Mathematical Logic and Theoretical Computer Science.

[Jun 04, 15d] Oxford University. Mathematical Institute.

[Jul 03, 1m] Abdus Salam International Centre for Theoretical Physics

4 Research

4.1 Research Interests

Main Research Fields Theoretical Computer Science, Logic in Computer Science, Computational Complexity, Proof Complexity Automated Theorem Proving. Satisfiability: theory and applications. Recent interests include also Boolean Network Tomography. Nicola's main research interests are lower bounds for proofs and models of computations, that is the study of the limits of proofs and computations when resources like time, space, randomness or information content are bounded. These are problems closely related to the main questions in computer science such as the well-known P vs NP problem.

4.2 Main and Recent Research Visits

[Sep 19, 1m] Czech Academy of Science. Mathematical Institute (P. Pudlàk)

[Jul 19, 1m] DIMACS (Center for Discrete Mathematics and Theoretical Computer Science) - Rutgers University. (E. Allender)

[Sep 18, 1m] Czech Academy of Science. Mathematical Institute (P. Pudlàk)

[Jul 19, 1m] University of Liverpool, UK.

[Sep 17, 1m] Czech Academy of Science. Mathematical Institute (P. Pudlàk)

[Jun 16, 1m] Visiting Scientists Tokyo Institute of Technology (O. Watanabe)

[Fall 15, 3m] Visiting Scientist at University of California Berkeley (Simons Institute for Theory of Computing)

[May 15, 1m] University of Leeds (O. Beyersdorff)

[Mar 15, 20d] University of Toronto (T. Pitassi)

[Mar 15, 20d] University of Montreal (P. McKenzie)

[Sep 14,1m] Czech Academy of Science. Mathematical Institute (P. Pudlàk)

[May 14, 20d] Czech Academy of Science. Mathematical Institute (P . Pudlàk)

[Sep 13, 15d] Penn State University and Columbia University (M. Fürer, R. Servedio)

[Jan 13, 15d] KTH Stockholm (J. Nördstrom)

[Mar 12, 1w] Newton Institute Cambridge. Logical Approaches to Barriers in Complexity

[Mar 10, 20d] *Czech Academy of Science* Mathematical Institute (P. Pudlàk)

[Mar 09, 20d] *Czech Academy of Science* Mathematical Institute (J. Krajicek)

[Jul 07, 15d] *Liverpool University* Dept of Computer Science (M. Zito)

[Apr 06, 1w] Newton Institute Cambridge (Semester New Directions in Proof Complexity)

[Jun 04, 15d] Oxford University. Mathematical Institute (N. Thapen)

[Jul 03, 1m] Abdus Salam International Centre for Theoretical Physics (R. Zecchina)

4.3 Main Invited Talks

[Feb 20] Workshop on SAT Interactions. Dagstuhl Leibniz Center (DE). *TBA*

[Jan 20] Banff Workshop on Proof Complexity. BIRS Workshop Banff (CA). *TBA*

[Sep 19] XXII Congresso dell'Unione Matematica Italiana. Session of Mathematical Logic (Pavia, IT). *Complexity of Proofs From Structural Graph Theory.*

[Sep 18] Graph Searching: Theory and Applications (GRASTA) workshop (TU -Berlin) (DE). *Cops-Robber Games and the Resolution Complexity of Tseitin Formulas.*

[Jul 18] SAT-LICS Workshop in Proof Complexity, (Oxford University) *Space Proof Complexity beyond Resolution.*

[Jul 18] Workshop on Ramsey Theory and Computability. Notre Dame University. *Proof Complexity of k-Clique Principles.*

[Aug 17] Workshop on Proof Complexity and Beyond. Mathematisches Forschungsinstitut Oberwolfach.

[Aug 17] Technion. *Refuting random 3CNF's using polynomials requires large proof space*

[Sep 16] Workshop on SAT Interactions. Dagstuhl Leibniz Center (DE). *Two problems on space complexity of Cutting Planes proof system.*

[Aug 16] Workshop on Theoretical foundations of SAT solving. Fields Institute Toronto. *What you can do with 5 linear inequalities.*

[Sep–Dec 15] Simons Institute For Theory of Computing. *Space proof Complexity for Random kCNFs and Hall's theorem.*

[Oct 14] Workshop on SAT Interactions. Dagstuhl Leibniz Center (DE). *Organizer.*

[Jan 14] Workshop on Theoretical Foundations of Applied SAT Solving. BIRS Research Center. Banff (CA) *Space complexity in algebraic proof systems.*

[Mar 12] Workshop Logical Approaches to Barriers in Complexity II. Isaac Newton Institute for Mathematical Sciences, Cambridge. *Proof Complexity of Paris-Harrington Tautologies.*

[Oct 11] Workshop on Proof Complexity. BIRS Research Center. Banff (CA) *Some results on the complexity of proofs in parameterized Resolution.*

[Feb 10] Workshop on Circuits Logic and Games. Dagstuhl Leibniz Center (DE) *The strength of treelike parameterized resolution.*

[Aug 10] Workshop Parameterized Complexity of Computational Reasoning. MFCS+CSL 2010. Brno, Czech Republic- *The Complexity of Proofs in Parameterized Resolution.*

[Jul 10] Workshop n Propositional Proof Complexity: Theory and Practice. FLOC 2010. Edinburgh (UK). *The Complexity of Proofs in Parameterized Resolution.*

[Aug 09] Workshop Barriers in Computational Complexity Workshop. Center For Computational Intractability. Princeton University. Princeton. *Absent for health problems.*

[Mar 06] Workshop on Complexity of Boolean Functions. Dagstuhl Leibniz Center (DE)

[Apr 05] Workshop New directions in Proof Complexity. Isaac Newton Institute for Mathematical Sciences, Cambridge. *Resolution by Pebbling Games.*

[Jun 03] Workshop on Randomized Graphs and Algorithms. Bertinoro Research Center - University of Bologna (IT). *Space Complexity of Random Formulae in Resolution.*

[Mar 03] Workshop The Propositional Satisfiability Problem – Algorithms and Lower Bounds. Dagstuhl Leibniz Center (DE)

[Mar 02] Workshop Complexity of Boolean Functions Workshop. Dagstuhl Leibniz Center (DE)

[Oct 01] Workshop on Circuit and Proof Complexity. International Center for Mathematical Study. Edinburgh (UK). .

[Dec 00] Workshop on Proofs and Computations. Institute for Advanced Study. Princeton. (US).

[Jun 99] Workshop on Logical Complexity Theory. Ludwig-Maximilians-Universität München. Institut für Informatik. Munich (DE).

4.4 Research Grants and Projects

[12–14] Principal Investigator (Italian Side): Italy-German Integrated Action (CRUI-DAAD). Title of the Project: *Parameterized Proof Complexity.* Universities involved: Sapienza Rome, Leibniz University Hanover (German leader, Olaf Beyersdorff). Amount 13,000 Euro for two years on both sides.

[11–13] Principal Investigator. Project "The Limits of Theorem Proving", 150000$ granted by the *John Templeton Foundation.* Co-project leader: Olaf Beyersdorff (Hanover, Germany)

[09-11–] Principal Investigator in the research project "Complexity and Compact Representability of discrete structures". (In Italian) granted by "La Sapienza" University (8,000+16,000 Euro).

[07–08] Participation in the research project granted by "La Sapienza" University: "Compression bounds in Combinatorics and Computational Complexity" (in Italian).

[05–06] Participation in the project granted by "La Sapienza" University: "Efficient algorithms on advanced models of computation and communication" (in Italian).

[03–05] Participation in the project " Classical and Multi-Valued Logics: Foundations and Computational Aspects" (In Spanish) granted by Spanish Ministry of Education.

[01–03] Participation in the project "Complexity of Algorithms and Logical Calculi" (In Spanish) granted by Spanish Ministry of Education.

4.5 Agencies' Granted Support for Employment and Visiting

[May 04] Visit Oxford University. Supported by a *London Mathematical Society* grant.

[May 03] Visit Abdus Salam center for Theoretical Physics. Supported by the project: Complex Systems Network of Excellence (EXYSTENCE)

[02–03] PostDoc at the University of Toronto. Supported by a Canadian NSERC (National Science and Engineering Research Council) grant.

[00–01] Researcher at the Institute for Advanced Study. Supported by a USA NSF (National Science and Foundation)

[96–99] 3-years Marie Curie Fellowship. Granted by European Community under the Training and Mobility of Researcher (under 20) project in The Fremework Programme 4. (Title: "A Structural Complexity approach to propositional Proof Complexity").

[94–95] One year grant from Università degli Studi di Bari to specializying abroad (used for PhD studies at the Universitat Politécnica de Catalunya).

4.6 Prizes and Awards

[2013] *ACM Computing Reviews* most notable 2012 paper in Computer Science, for the paper *Parameterized Bounded-Depth Frege is not Optimal*.

5 Teaching and Advising

5.1 Undergrad, Master, Doctoral

- Combinatorics (from 2019)
- Introduction to Computability and Complexity (La Sapienza - On line from Fall 2016)
- Mathematical Modelling and Optimization. (La Sapienza, Since 2010)
- Introduction to Programming (UPC: 2001, 2003, 2004, La Sapienza 2005-2009)
- Algorithms and Data Structures (La Sapienza: 2008)
- Advanced Programming (La Sapienza: 2005–2007)
- Introduction to Logic (UPC: 2001, 2003, 2004)
- Data Bases (UPC:1999, 2000)

Master

- Computational Complexity (from Fall 2016)
- Computational Intractability (Sapienza since 2012–2016)

- Theory of Computation (Sapienza: 2010–2012)
- Proof Theory (Sapienza 2005–2010)

Graduate Courses

- Complexity (UPC: 2003)
- Proof Complexity (UPC: 2004)
- Main results in Computational Intractability (Sapienza ICT Graduate School, from 2013)

5.2 International Graduate Schools

- NoNa Summer School in Complexity Theory (Proof Complexity) (August 2009, St Petersburg Russia). Organizer. A. Kulikov
- Salerno Weekly PhD Course on Proof Complexity (March 2009) Salerno, Italy. Organizer: G. Persiano

5.3 Advising (Master, Phd, Postdoc)

[18-] PhD Advisor for Fariba Ranjbar (From Mathematics University of Theran)

[18] Master Thesis Advisor for Abdul Majith in Computer Science (full mark).

[16] Master Thesis Advisor for Vincenzo Botta in Computer science (full mark cum laude)

[12-15] PhD advisor for Ilario Bonacina (Sapienza University) (full mark cum laude)

[12] Master Thesis Advisor for Ilario Bonacina in Mathematics (University of Pisa) (full mark cum laude).

[09–10] PostDoc advisor for Massimo Lauria (Sapienza University).

[09–10] PostDoc host for Olaf Beyersdorff. PhD at Humboldt-Universität zu Berlin.

[05–09] PhD advisor for Massimo Lauria.(Sapienza University).Title of the Thesis: *Degree lower bounds for Algebraic Proof Systems.*

[07] PostDoc host for Alan Skelley (PhD At University of Toronto). Now at Google California.

[09] Advisor for Master Thesis in Mathematics (Sapienza) for Silvia Pragliola.

5.4 Academic Career of Advised Students and Postdoc

- *Massimo Lauria*: Associate Professor, Sapienza University of Rome
- *Ilario Bonacina*: Postdoc Researcher, Universtat Politecnica de Catalunya and formerly KTH Stockholm
- *Olaf Beyersdorff*: Full Professor, University of Jena
- *Alan Skelley*: Researcher At Google Research California

5.5 Phd Thesis Committee

[14] Antonio Faonio - Sapienza Università Roma (Advisor: Giuseppe Ateniese)

[13] Sergi Oliva - Universitat Politecnica de Catalunya (Adivsor: Albert Atserias)

5.6 Informatics Olimpiads and programming contests

From 2009–2016 Nicola has been member of the Ministerial Committee (MIUR) for the Informatics Olimpiads whose aim is that of organising and managing all the yearly process for the development of the Olimpiads of Informatics (from the school competition to the international competition for the Italian team). During the years in Sapienza he organised and managed in his department a series of training courses and activities devoted to high school students and high school teachers aimed at approaching schools of Lazio to Olimpiads of Informatics. In 2007 and 2008 he selected, trained and coached a team of La Sapienza undergrad students to compete in the ACM International Collegiate Programming Contest.

5.7 Teaching Tables

Table 1: Bachelor Level - Computer Science

Year	Title	Univ	Role	Type	Enrolled	Year	Involvement	Exam
1999	Data Bases	UPC	Lecturer	90 hs	80	IV	Responsible for lecturing	Written+Oral +Lab
2001	Introduction to Programming	UPC	Lecturer	180 hs	80	I (I and II term)	Rethought syllabus in a team. Responsible for lecturing	Written+Oral +Lab
2002	Introduction to Programming	UPC	Lecturer	180 hs	80	I (I and II term)	...	Written+Oral +Lab
2003	Introduction to Programming	UPC	Lecturer	180 hs	80	I (I and II term)	...	Written+Oral +Lab
2004	Introduction to Logic	UPC	Lecturer	180 hs	80	I (I and II term)	Took over the course from a colleague rethought syllabus in a team. Responsible for lecturing	Written+Oral
2005	Introduction to Logic	UPC	Lecturer	180 hs	80	I (I and II term)	...	Written+Oral
2006	Introduction to Programming	Sapienza	Lecturer	90 hs	60	I	Rethought syllabus. Responsible for structuring planning and lecturing	Written+Oral +Lab
2006	Advanced Programming	Sapienza	Lecturer	60 hs	50	II	Rethought syllabus. Responsible for structuring planning and lecturing	Written+Oral
2007	Introduction to Programming	Sapienza	Lecturer	90 hs	60	I	...	Written+Oral +Lab
2007	Advanced Programming	Sapienza	Lecturer	60 hs	50	II	...	Written+Oral
2008	Introduction to Programming	Sapienza	Lecturer	90 hs	60	I	...	Written+Oral +Lab
2008	Introduction to Algorithms	Sapienza	Lecturer	60 hs	50	II	Rethought syllabus. Responsible for structuring planning and lecturing	Written+Oral
2008	Programming Lab	Sapienza	Lecturer	60 hs	60	I	...	Written+Oral
2009	Introduction to Algorithms	Sapienza	Lecturer	60 hs	50	II	...	Written+Oral
2009	Introduction to Programming	Sapienza	Lecturer	90 hs	60	I	...	Written+ Oral+Lab
2010	Introduction to Algorithms	Sapienza	Lecturer	60 hs	15	II	...	Written+Oral
2010	Introduction to Programming	Sapienza	Lecturer	90 hs	90	I	...	Written+ Oral+Lab
2011	Introduction to Programming	Sapienza	Lecturer	90 hs	250	I	...	Written+ Oral+Lab
2011	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	15	III	New course completely designed by me responsible for structuring, planning and lecturing	Written+Oral
2012	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	85	III	...	Written+Oral
2013	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	250	III	...	Written+Oral
2014	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	170	III	...	Written+Oral
2015	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	120	III	...	Written+Oral
2016	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	120	III	...	Written+Oral
2016	Automata, Computability, Complexity	Sapienza Online	Lecturer	60 hs	15	III	New course designed by me. Responsible for structuring planning and lecturing	Written+Oral
2017	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	120	III	...	Written+Oral
2017	Automata, Computability, Complexity	Sapienza Online	Lecturer	20 hs	15	III	...	Written+Oral
2018	Mathematical Modeling and Optimization	Sapienza	Lecturer	60 hs	120	III	...	Written+Oral
2018	Automata, Computability, Complexity	Sapienza Online	Lecturer	20 hs	15	III	...	Written+Oral

Table 2: Master Level (Sapienza) - Computer Science

Year	Title	Role	Type	Enrolled	Involvement	Exam
2009	Proof Theory	Lecturer	60 hs	~ 5	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral
2010	Proof Theory	Lecturer	60 hs	~ 5	...	Hw+Oral
2011	Theory of Computing	Lecturer	60 hs	~ 10	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral
2012	Theory of Computing	Lecturer	60 hs	~ 10	...	Hw+Oral
2013	Theory of Computing	Lecturer	60 hs	~ 10	...	Hw+Oral
2014	Computational Intractability	Lecturer	60 hs	~ 10	New Course designed by me Responsible and lecturer	Hw+Oral
2015	Computational Intractability	Lecturer	60 hs	~ 10	...	Hw+Oral
2016	Computational Complexity	Lecturer	60 hs	~ 10	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral
2017	Computational Complexity	Lecturer	60 hs	~ 10	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral
2018	Computational Complexity	Lecturer	60 hs	~ 10	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral
2019	Computational Complexity	Lecturer	60 hs	...	Rethought syllabus. Responsible for structuring planning and lecturing	Hw+Oral

Table 3: PhD Teaching

Year	Title	University	Role	Type	Enrolled	Involvement	Level	Exam
2002	Complexity Theory	UPC	Lecturer	1 month module ($\sim$30 hs)	< 10	Module Responsible	PhD	Written+ HW
2004	Proof Complexity	UPC	Lecturer	1 month module ($\sim$ 30 hs)	< 10	Module Responsible	PhD	Written+ HW
2009	Proof Complexity	Steklov Institute of Mathematics at St.Petersburg	Invited Lecturer	Week course ($\sim$ 15 hs)	$\sim$100	Responsible	PhD	
2009	Proof Complexity	University of Salerno Computer Science	Invited Lecturer	Week course ($\sim$ 15 hs)	$\sim$30	Responsible	PhD	
2013	Great Ideas in CS Razborov-Smolensky's Theorem	Sapienza	Lecturer	2 days course ($<$ 10 hs)	$\sim$30	Module Responsible	PhD	HW
2014	Great Ideas in CS Razborov-Smolensky's Theorem	Sapienza	Lecturer	2 days course ($<$ 10 hs)	$\sim$30	Module Responsible	PhD	HW

Table 4: Other (volunteer) Teaching at Sapienza

Year	Title	University	Role	Type	Enrolled	Involvement	Level	Exam
2009	Training for ACM Programming Contests	Sapienza	Lecturer	Term ($\sim$ 60 hs)	$\sim$ 15	A new free course Invented by me. Designed and developed with a colleague. I was responsible	Bachelor Students	Team Selection
2010	Training for ACM Programming Contests	Sapienza	Lecturer	Term ($\sim$ 60 hs)	$\sim$ 15	...	Bachelor Students	Team Selection
2011	Introduction to Python	Sapienza	Lecturer	1 month course ($\sim$ 15 hs)	$\sim$ 15	Module Responsible	High School Students for CS Olimpidias	
2013	CS Seminars: Final Thesis for Bachelor	Sapienza	Responsible	2 terms	$\sim$ 30	A new activity designed by me based on seminars of faculties and students	Bachelor Students	Final thesis
2014	CS Seminars: Final Thesis for Bachelor	Sapienza	Responsible	2 terms	$\sim$ 30	...	Bachelor Students	Final thesis
2013	Algorithms: Continuing Education for School Teachers	Sapienza	Module Lecturer	1 month course ($\sim$ 15 hs)	$\sim$ 10	Module Responsible	High School Teachers	Written
2015	Training for Regional Olympic CS Contest	Sapienza	Lecturer	2 month course ($\sim$ 15 hs)	$\sim$ 30	Module Responsible	High School Students	
2017	Introduction To Computer Science	Sapienza	Lecturer	30 hs	$\sim$ 300	Module Responsible	Pharmacy and Medicine Students	Written
2019	Combinatorics	Sapienza	Lecturer	60 hs	$\sim$ 30	Module Responsible	Computer Science and Mathematics 3rd yr Students	Oral

6 Administration and Services

6.1 Administration

[17–18] Chair of PhD Studies. Department of Computer Science. Sapienza University of Rome.

[15–17] Member of the departmental committee for Phd studies.

[15] Chair of the Selection Committee for PhD Studies for 2015.

[09–16] Member of the *Italian Committee for the Computer Science Olympic Games.*

[05–09] Member of the *Restricted Departmental Committee* (Giunta di Dipartimento), Dept of Computer Science. Università La Sapienza

[07–14] Member of the *Teaching Committee* of the Department of Computer Science. Università La Sapienza Roma.

[07] Member of the *Committee of the PhD Studies* a the Department of Computer Science, University of Rome "La Sapienza"

[06] Member of the Selection Committee for PhD Studies.

Program Committees, Editorial Boards

[17] PC Member of the The 37 Foundations of Software Technology and Theoretical Computer Science (FSTTCS 17)

[13] PC Member of the The 10th annual conference on Theory and Applications of Models of Computation (TAMC 2013)

[12] PC member of the CSL *Computer Science Logic* Conference.

[12] PC member of IEEE Conference on Computational Complexity (Chair: Venkat Guruswami)

[10] PC Member of the Computability in Europe (CiE 2010) Conference

[09] PC Member of the International Conference on Theory and Applications of Satisfiability Testing (SAT 2009) Conference.

[08–] Member of the Editorial Board of the Journal JSAT- Journal on Satisfiability Boolean Modeling and Computation

[06] PC Member of the *Italian Conference on Algorithms and Complexity* (CIAC 2100)

[05–] Evaluator for the Catalan Research Agency AGAUR

[13–] Evaluator for the Polish Research Agency

6.2 Organization and Scientific Committees

[18] Organizer and Scientific Committee of the *RatLocc 2018: Workshop on Ramsey Theory in Logic, Complexity and Combinatorics III* Bertinoro Residential Center. University of Bologna. Bertinoro, Italy.

[18] Organizer of the workshop in honour of Janos Körner. Sapienza University Rome.

[16] Publicity Chair of ICALP 2016.

[12] Organizer and Scientific Committee of the Workshop "Limits of Theorem Proving". Rome September 2012

[12] Organizer and Scientific Committee of the Workshop *SAT Interactions* Dagstuhl - Leibniz Center for Informatics.

[11] Organizer and Scientific Committee of the *RatLocc 2011: Workshop on Ramsey Theory in Logic, Complexity and Combinatorics II* Bertinoro Residential Center. University of Bologna. Bertinoro, Italy.

[09] Organizer and Scientific Committee of the *RatLocc 2009: Workshop on Ramsey Theory in Logic, Complexity and Combinatorics I* Bertinoro Residential Center. University of Bologna. Bertinoro, Italy.

[08] Organizer and Responsible of the Theory Seminar (SeT) at the Dept of Computer Science La Sapienza University.

[06,08] Coach for the "La Sapienza" Student Team competing at the *ACM International Collegiate Programming Contest*.

6.3 Referee service

[Journals] Journal of the ACM, SICOMP, Computational Complexity, Theoretical Computer Science, Theory of Computing systems, Information Processing Letters, Journal of Symbolic Logic, ACM Transactions on Computational Logic.

[Conferences] IEEE Conference on Computational Complexity (CCC), ACM Symposium on Theory of Computing (STOC), IEEE Symposium on Foundations of Computer Science (FOCS), International Colloquium on Automata, Languages and Programming. (ICALP),IEEE Conference in Logic in Computer Science (LICS), Computer Science Logic (CSL).

7 Publications

7.1 10 selected publications

[1] Nicola Galesi, Leszek A. Kołodziejczyk, Neil Thapen. *Polynomial calculus space and resolution width.* IEEE Conference on Foundation of Computer Science FOCS 19. To appear.

[2] Ilario Bonacina, Nicola Galesi, Neil Thapen. *Total Space in Resolution.* IEEE FOCS 2015 and Siam Journal on Computing. 45(5): 1894-1909 (2016)

[3] Ilario Bonacina, Nicola Galesi. *A framework for space complexity in algebraic proof systems.* Innovations In Theoretical Computer Science ITCS 2013 and Journal of the ACM. 62(3): 23 (2015)

[4] Olaf Beyersdorff, Nicola Galesi, Massimo Lauria, Alexander Razborov. *Parameterized Bounded-Depth Frege is not Optimal.* ACM Transactions on Computation Theory (TOCT). 4(3), pp. 1–16 2012.

[5] J.Buresh-Oppenheim, Nicola Galesi, A. Magen, T. Pitassi. S. Hoory *Rank Bounds and Integrality Gaps for Cutting Planes Procedures.* IEEE FOCS 2003 and Theory of Computing. 2(1) pp. 65–90, 2006.

[6] J.L Esteban, Nicola Galesi, J. Messner. *On the Complexity of Resolution with Bounded Conjunctions.* Theoretical Computer Science. 21(2-3)pp. 347-370 2004

[7] E. Ben-Sasson, Nicola Galesi *Space Complexity for Random Formulae in Resolution.* Random Structures and Algorithms, 2003. Vol 23(1). 2003 pp.92-109.

[8] A. Atserias, Nicola Galesi, P. Pudlak. *Monotone Simulations of nonmonotone Propositional Proofs.* Journal of Computer and System Science. 65(4): 626-638 (2002)

[9] M. L. Bonet, Nicola Galesi. *Optimality of Size-Width tradeoffs for Resolution.* IEEE FOCS 2000 and Computational Complexity. 10(4): 261-276 (2001)

[10] M. L. Bonet, J.L. Esteban, Nicola Galesi, J.Johannsen. *On the Relative Complexity of the Resolution Refinements and Cutting Planes Proof Systems.* SIAM Journal on Computing. 30(5) pp. 1462-1484. (2000).

7.2 5 most cited publications

Data extracted from Google Scholar (updated on May 2020)

[1] J. Buresh-Oppenheim, Nicola Galesi. A. Magen, S. Hoory, T. Pitassi. *Rank Bounds and Integrality Gaps for Cutting Planes Procedures.*41-th IEEE Symposium on Foundations of Computer Science (FOCS 03) pp. 318-327 (2003).
Cit: 97

[2] M. L. Bonet, J.L. Esteban, Nicola Galesi, J.Johannsen. *On the Relative Complexity of the Resolution Refinements and Cutting Planes Proof Systems.* SIAM Journal on Computing. 30(5) pp. 1462-1484. (2000).
Cit: 97

[4] E. Ben-Sasson, Nicola Galesi *Space Complexity for Random Formulae in Resolution.* Random Structures and Algorithms, 2003. Vol 23(1). 2003 pp.92-109.
Cit: 89

[3] M. L. Bonet, Nicola Galesi. *Optimality of Size-Width tradeoffs for Resolution.* Computational Complexity. 10(4): 261-276 (2001)
Cit: 88

[5] G. Ateniese, I Bonacina, A Faonio, N Galesi. *Proofs of space: When space is of the essence.* International Conference on Security and Cryptography for Networks, 538-557.
Cit: 84

7.3 Full list of publications

Journals

[J25] Nicola Galesi, Navid Talebanfard, Jacobo Torán
Cops-Robber Games and the Resolution of Tseitin Formulas.
ACM Transactions on Computation Theory Vol. 12, No. 2, Article 9, March 2020.

[J24] Patrick Bennet, Ilario Bonacina, Nicola Galesi, Tony Huynh, Mike Molloy, Paul Wollan.
Space Proof Complexity for random 3-CNFs
Information and Computation 255, pp. 165–176 (2017)

[J23] Ilario Bonacina, Nicola Galesi, Neil Thapen.
Total Space in Resolution
Siam Journal on Computing. 45(5), pp. 1894–1909 (2016)

[J22] Lorenzo Carlucci, Nicola Galesi and Massimo Lauria.
On the Proof Complexity of Paris-Harrington and Off-Diagonal Ramsey Tautologies
ACM Transactions on Computational Logic. 17(4), pp. 1–25 Sept. 2016

[J21] Ilario Bonacina, Nicola Galesi.
A framework for space complexity in algebraic proof systems.
Journal of the ACM. 62(3),pp. 1–20 (2015)

[J20] Olaf Beyersdorff, Nicola Galesi and Massimo Lauria.
A characterization of tree-like Resolution size.
Information Processing Letters 113(18), pp. 666–671 (2013)

[J18] Olaf Beyersdorff, Nicola Galesi and Massimo Lauria.
Parameterized Complexity of DPLL Search Procedure
ACM Transactions on Computational Logic. 14(3). pp. 1–21 2013 pp:

[J17] Olaf Beyersdorff, Nicola Galesi and Massimo Lauria, Alezander Razborov.
Parameterized Bounded-Depth Frege is not Optimal
ACM Transactions on Computation Theory (TOCT). 4(3), pp. 1–16 2012.

[J16] Olaf Beyersdorff, Nicola Galesi and Massimo Lauria.

A Lower Bound for the Pigeonhole Principle in Tree-like Resolution by Asymmetric Prover-Delayer Games
Information Processing Letters. 110(23), pp. 1074–1077 2010

[J15] Nicola Galesi, Massimo Lauria.
Optimality of size-degree trade-offs for Polynomial Calculus
ACM Transactions on Computational Logic. 12(1). pp. 491–506 2010.

[J14] Nicola Galesi, M. Lauria
On the Automatizabilty of Polynomial Calculus.
Theory of computing Systems 47(2). pp. 491–506. 2011

[J13] J.Buresh-Oppenheim, Nicola Galesi, A. Magen, T. Pitassi. S. Hoory
Rank Bounds and Integrality Gaps for Cutting Planes Procedures.
Theory of Computing. 2(1) pp. 65–90, 2006.

[J12] Nicola Galesi, Nicola Thapen.
Resolution and Pebbling Games
Selected Papers of SAT 05, Lecture Notes in Computer Science 3596, pp. 76–90, 2006.

[J11] Nicola Galesi, O. Kullmann.
Polynomial SAT decision, hypergraph transversals and Hermitian rank
Selected Papers of SAT 04, Lecture Notes in Computer Science 3542, pp. 89–104., 2005

[J10] J.L Esteban, Nicola Galesi, J. Messner.
On the Complexity of Resolution with Bounded Conjunctions.
Theoretical Computer Science. 21(2-3). pp. 347–370 2004

[J9] E. Ben-Sasson, Nicola Galesi
Space Complexity for Random Formulae in Resolution.
Random Structures and Algorithms, 2003. Vol 23(1), pp.92–109. 2003

[J8] A. Atserias, Nicola Galesi, P. Pudlak.
Monotone Simulations of nonmonotone Propositional Proofs.
Journal of Computer and System Science. 65(4), pp. 626–638 (2002)

[J7] M. L. Bonet, Nicola Galesi.
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Archive for Mathematical Logic. 42(5), pp. 403–414 (2003)

[J6] M. L. Bonet, Nicola Galesi.
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[J5] A. Atserias, Nicola Galesi, R. Gavalda.
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Mathematical Logic Quarterly. 47(4), pp. 461–474 (2001).

[J4] M. L. Bonet, J.L. Esteban, Nicola Galesi, J.Johannsen.
On the Relative Complexity of the Resolution Refinements and Cutting Planes Proof Systems.
SIAM Journal on Computing. 30(5), pp. 1462–1484. (2000).

[J3] S. Caporaso, M. Zito, Nicola Galesi.
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[J2] M.L. Bonet, Nicola Galesi.
Linear Lower Bounds and Simulations in Frege Systems with Substitutions.
In Selected Papers of 11-th Computer Science Logic. Edited by W. Thomas and M. Nielsen, Lecture Notes in Computer Science. Vol. 1414 pp. 115–128 (1998).

[J1] Nicola Galesi.
A syntactic characterization of bounded-rank decision trees in terms of decision lists.
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Conference Proceedings

[C27] Nicola Galesi, Leszek A. Kołodziejczyk, Neil Thapen
Polynomial Calculus Space and Resolution width.
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[C26] Nicola Galesi, Dmitry Itsykson, Artur Riazonov, Anastasia Sofronova.
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[C25] Stefan Dancthev, Nicola Galesi, Barnaby Martin
Resolution and the binary encoding of combinatorial principles.
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[C24] Nicola Galesi, Fariba Ranjbar, Michele Zito
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[C23] Nicola Galesi, Fariba Ranjbar:
Tight Bounds for Maximal Identifiability of Failure Nodes in Boolean Network Tomography
38th IEEE International Conference on Distributed Computing Systems, ICDCS 2018. pp.212–222

[C22] Nicola Galesi, Navid Talebanfard, Jacobo Torn:.
Cops-Robber Games and the Resolution of Tseitin Formulas.
Theory and Applications of Satisfiability Testing - SAT 2018, LNCS 2018. pp. 311–326

[C20] Nicola Galesi, Pavel Pudlak, Neil Thapen.
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[C19] Ilario Bonacina, Nicola Galesi, Neil Thapen.
Total Space in Resolution
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[C18] Giuseppe Ateniese, Ilario Bonacina, Antonio Faonio, Nicola Galesi.
Proofs of Space: When Space Is of the Essence.
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[C17] Ilario Bonacina Nicola Galesi.
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Innovation in Theoretical Computer Science 2013. Berkeley pp. 455–472

[C16] Olaf Beyersdorff, Nicola Galesi, Massimo Lauria and Alexander Razborov.
Parameterized Bounded-Depth Frege is Not Optimal
ICALP 2011 . LNCS (1) 2011. pp. 630–641

[C15] Lorenzo Carlucci, Nicola Galesi and Massimo Lauria.
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[C14] Olaf Beyersdorff, Nicola Galesi and Massimo Lauria.
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[C13] Nicola Galesi, Neil Thapen
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Proceedings of SAT 2005 . LNCS, pp. 76–90. 2005

[C12] Nicola Galesi, Oliver Kullmann
Polynomial SAT Decision, hypergraph transversal and Hermitian Rank.
Proceedings of SAT 2004 LNCS, pp. 89–104. 2004

[C11] Nicola Galesi, Nicola n.
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IEEE Conference on Computational Complexity 2004: 68–74

[C10] J. Buresh-Oppenheim, Nicola Galesi. A. Magen, S. Hoory, T. Pitassi.
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[C9] J.L. Esteban, Nicola Galesi, J. Messner.
On the Complexity of Resolution with Bounded Conjunctions.
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[C8] E. Ben-Sasson, Nicola Galesi.
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In Proceedings of the IEEE Conference on Computational Complexity 2001 (CCC 01), pp. 42–51.

[C7] A. Atserias, Nicola Galesi, P. Pudlak.
Monotone Simulations of nonmonotone Propositional Proofs.
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[C6] A. Atserias, Nicola Galesi, R. Gavalda.
Monotone Proofs of the Pigeon Hole Principle.
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[C5] M.L. Bonet, Nicola Galesi.
A Study of Proof Search Algorithms for Resolution and Polynomial Calculus.
40-th IEEE Symposium on Foundations of Computer Science (FOCS 99) pp.422–431 (1999).

[C4] M.L. Bonet, J.L. Esteban, Nicola Galesi, J. Johannsen
Exponential Separations between Restricted Resolution and Cutting Planes Proof Systems.
39-th IEEE Symposium on Foundations of Computer Science (FOCS 98) pp. 638–647 (1998).

[C3] M.L. Bonet, Nicola Galesi.
Linear Lower Bounds and Simulations in Frege Systems with Substitutions.
11-th Computer Science Logic. pp. 109–119 (CSL 97)

[C2] S. Caporaso,M. Zito, Nicola Galesi, E. Covino.
Syntactic Characterization in LISP of the Polynomial Complexity Classes and Hierarchy.
Proceedings of the 3rd Italian Conference on Algorithms and Complexity (CIAC 97). Lecture Notes in Computer Science. 1203, pp. 61–73 (1997)

[C1] V. De Florio, Nicola Galesi, F.P. Murgolo, V. Spinelli.
Towards an implementation of the Linda Model into the Parallel Virtual Machine.
Conference Proceedings of the European Conference of Convex Users Group. Bilbao, Spain, pp. 1–18 (1993).

Theses

[M2] Nicola Galesi. *On the Complexity of Propositional Proof Systems* PhD Thesis. May 2000. Universitat Politecnica de Catalunya.

[M1] Nicola Galesi. *A sublanguage of LISP: the Recursive Primitive LISP.* Tesi di Laurea (B.Sc Final Thesis) (in Italian). Università degli Studi di Bari (December 1992).