Marco Cosentino Lagomarsino

PI “Quantitative Biology of Cells and Genomes” Group
IFOM Foundation – FIRC Institute of Molecular Oncology
Via Adamello 16 20139 Milan, Italy

Associate Professor, Università degli Studi di Milano
Dipartimento di Fisica, Via Celoria 16, 20133 Milano, Italy

Tel. +39 0250317477
E-mail: marco.cosentino-lagomarsino@ifom.eu
E-mail: marco.cosentinolagomarsino@unimi.it
Google Scholar
ResearcherID

CURRICULUM VITAE

Name:	Marco Cosentino-Lagomarsino
Place and date of birth:	Verona (Italy), June 26 1974.
Current Appointment:	Associate Professor University of Milan / PI “Quantitative Biology of Cells and Genomes”, IFOM Foundation.
Academic Qualifications:	2011. HDR (habilitation à diriger des recherches). University Pierre and Marie Curie / Sorbonne, Paris (FR)
	2004. Ph.D. in physics, University of Leiden (NL)
	1999 M.Sc in theoretical physics, University of Milan (IT)

Scientific Career, Degrees and Habilitations

2018 -	Associate Professor, Physics Department, University of Milan, Milan, Italy.
2018 -	PI IFOM, the FIRC Institute of Molecular Oncology, Milan, Italy.
2019	Abilitazione Scientifica Nazionale (habilitation for Italian Full Professor positions), Sector 02/A2 (Theoretical Physics).
2016	Abilitazione Scientifica Nazionale (habilitation for Italian Associate Professor positions), Sector 02/A2 (Theoretical Physics).
2015 - 2018	CNRS Research Director (Directeur de Recherche de deuxième classe, DR2) section 02 (theoretical physics) and interdisciplinary section 51 (modeling of biological systems), Computational and Quantitative Biology, UMR 7238 CNRS, Université Pierre et Marie Curie - Sorbonne, Paris (FR). Group Leader of the “GénoPhysique” (Genomic Physics) group.
2009 - 2015	CNRS Researcher (Chargé de Recherche de première classe, CR1) section 02 (theoretical physics) and interdisciplinary section 43/51 (modeling of biological systems), Computational and Quantitative Bioloy Unit UMR 7238 CNRS and Université Pierre et Marie Curie - Sorbonne, Paris (FR). Group Leader of the “GénoPhysique” (Genomic Physics) group.
2012	Abilitazione Scientifica Nazionale (habilitation for Italian Associate Professor positions), Sectors 02/A2 (Theoretical Physics / Condensed Matter) and 02/B3 (Applied Physics).
Sep 2011	HDR (Habilitation à diriger des recherches), Université Pierre et Marie Curie - Sorbonne, Paris. Thesis “A statistical-physics exploration of the proteome.”. Referees: Prof. Andrea Parmeggiani, Dr. Rosalind Allen, Dr. Madan Madan Babu. Other Jury Members: Prof. Alessandra Carbone, Prof. Vladimir Lorman, Dr. Antonio Celani, Dr. Hervé Isambert. http://www.lgm.upmc.fr/mcl/publi/MCL_hdr.1.0.pdf

Scientific Career, Degrees and Habilitations (continued)

Jul 2007 - Nov 2009	Research associate, theory group, physics department, University of Milan (Italy), and I.N.F.N., Milan.
Nov 2005 - Jun 2007	Postdoc Curie Institute, RNA dynamics and biomolecular systems group (H. Isambert), and research associate, University of Milan.
Nov 2005 - Oct 2006	Postdoc (Human Frontier) Curie Institute, theoretical biophysics group (J.F. Joanny), and research associate, theory group, physics department, University of Milan.
Oct 2004 - Oct 2005	Postdoc (PHYNECS European Network) at the Curie Institute (Paris, France) in the theoretical biophysics group, with Jean François Joanny.
Mar 2000 - Mar 2004	PhD at AMOLF (FOM Institute for Atomic and Molecular Physics, Amsterdam, The Netherlands). "Bio-organization" group. Supervisor Marileen Dogterom (Leiden University). Phd Thesis "Biologically Inspired Problems Concerning Semiflexible Filaments: Organization in Plant Cell Geometries, Hydrodynamics of Propulsion". (March 2004 - September 2004: AMOLF postdoc contract extension.) http://www.lgm.upmc.fr/mcl/publi/tesi.pdf
Mar 1999 - Feb 2000	Intern Dept. of Physics of the University of Milan with professors B. Bassetti (University of Milan) and P. Jona (*Politecnico*, Milan.)
Mar 1999	Master's Degree in theoretical physics at the University of Milan, Thesis: "Active transport far from equilibrium, the case of molecular motors. Dynamics, Cooperative effects, Thermodynamics", supervisor B. Bassetti. Grade 110/110 *cum laude*.

Referee Activity

I review articles for the journals *PNAS*, *PLoS Computational Biology*, *PLoS Genetics*, *Trends in Microbiology*, *Genome Biology and Evolution*, *Systems and Synthetic Biology*, *Molecular BioSystems*, *Cell Systems*, *Current Biology*, *Microbiology*, *BMC Microbiology*, *Nucleic Acids Research*, *Physical Review Letters*, *Physical Review E*, *BMC Systems Biology*, *Biophysical Journal*, *Journal of Chemical Physics*, *mBio*, *PLoS ONE*, *Soft Matter*, *Physica D*, *Physical Biology*, *Frontiers* and other minor journals and proceedings.

I have reviewed grants for the Human Frontier Science Program Organization, Agence nationale de la recherche (ANR), Stichting FOM (NL), Austrian Science Fund, National Science Center Poland, the National Centre for Biological Sciences (NCBS, India), Région Languedoc-Roussillon, University of Montpellier 2, CEFIPRA (Indo-French Centre for the Promotion of Advanced Research).

Committees and Boards

Panel Member and Referee. PhD Thesis Committee Luca Galbusera (Supervisor: E. van Nimwegen) Basel University, CH, 2020.

Referee. PhD Thesis Committee Yingjie Xiang (Supervisor: C. Jacobs-Wagner) Yale University, USA, 2020.

Panel Member and Referee. PhD Thesis Committee Baptiste Guilhas (Supervisor: M. Nollmann) University of Montpellier, FR, 2019.

Panel Member and President. PhD Thesis Committee Laura Caccianini (Supervisor: M. Dahan) Institut Curie / PSL University, Paris, FR, 2019.

Panel Member. Mini Viva Judith Mary Hariprakash, 1st year PhD Student, IFOM/Open University, 2018.

Committees and Boards (continued)

Referee. PhD Thesis Stefano Maggi (Supervisor: C. Rivetti) Dept of Physics, University of Parma, IT 2018.

2011-2018 Board Member, PhD Complex Systems for Life Sciences, Torino, IT.

Panel Member. PhD Thesis Committee Marco Todisco (Supervisor: T. Bellini) Dept of Biology, Univ. of Milan, IT, 2017.

Panel Member. PhD Clotilde Cadart (Supervisor: M. Piel). Curie Institute PhD School Structure et dynamique des systèmes vivants, Univ. Paris Saclay, FR, 2017.

Panel Member. PhD Thesis Committee Luca Galbusera (Supervisor: E. Van Nimwegen) Univ. of Basel, CH, 2016.

Panel Member. HDR (Habilitation a Diriger des Recherches). Sven Van Teeffelen, Pasteur Institute, Paris, 2016

Panel Member. Selection Committee PhD School “Interface Pour le Vivant” (IPV), Université Pierre and Marie Curie, 2016.

Panel Member. PhD Noreen Walker (Supervisor: S. Tans). AMOLF Amsterdam and TU Delft, NL, 2016.

Panel Member. PhD Tommaso Brotto (Supervisor J. Kurchan). University of Milan and École Normale Supérieure Paris, 2016.

Examiner. MPhil Victor Allard (Supervisor P. Cicuta). University of Cambridge 2016.

Panel Member. Selection for a Group Leader position. Institut de Biologie Paris Seine - Sorbonne, Paris, 2015.

Examiner. MPhil Theresa Jakuszeit (Supervisor P. Cicuta). University of Cambridge 2015.

Panel Member. PhD Silvia Zaoli (Supervisor A. Rinaldo). EPFL Lausanne 2014-2017.

Panel Member. PhD Jacopo Grilli (Supervisor A. Maritan). University of Padova 2015.

Panel Member. PhD Hafez El Sayyed (Supervisor O. Espeli). Collège de France / Université Paris-Sud, Paris 2013-2016.

Panel Member. PhD Orso Maria Romano (Supervisor S. de Monte). École Normale Supérieure, Paris 2013-2016,

Panel Member. Pranami Bora (Supervisor M. Morelli). IIT / IFOM Campus and Open University, Milan 2013-2016.

Panel Member. PhD Giovanna de Palo (Supervisor C. Altafini). SISSA International School for Advanced Studies Trieste 2012.

Panel Member. PhD Giovanni Iacono (Supervisor C. Altafini). SISSA International School for Advanced Studies Trieste 2012.

Panel Member. PhD Ladan Amin (Supervisor V. Torre). SISSA International School for Advanced Studies Trieste 2012.

Referee. Matteo Osella (Supervisor M. Caselle), 2010 PhD programme in complexity in post-genomic biology, University of Turin (Italy).

Panel Member. PhD Richard Stein (Supervisor H. Isambert), Institut Curie / UPMC, Paris 2009.

Honors – Awards

Prime d'excellence CNRS 2011-2014

HFSP Young Investigator Grant 2009

HFSP Young Investigator Grant 2014

Funding ID

Current Support

2020-2025: PI of AIRC Investigator Grant "Model-guided data science of single-cell growth" (616k€).

Past support

2014-2018: PI of Human Frontier Science Program Young Investigator Grant "Nucleoid proteins and DNA structure, global regulation of the bacterial transcription network." with B. Sclavi, P. Cicuta, K. Dorfman (1.200M$ for the whole team).

2014-2018: CEFIPRA (Indo-French Centre for the Promotion of Advanced Research) Grant "'Genome-scale analysis of differential propensities of different chromosomal domains for horizontal gene insertion in Escherichia coli" (co-PI with Aswin Seshasayee and Bianca Sclavi). 37.5 keuros + 2yr postdoc position.

2014-2016: LabEx CALSIMLAB / ICS (Institut du Calcul et de la Simulation) 2yr postdoc funds UPMC (90 keuro).

2009-2013: PI of Human Frontier Science Program Young Investigator Grant "Nucleoid proteins and DNA structure, global regulation of the bacterial transcription network." with B. Sclavi, P. Cicuta, K. Dorfman (1.350M$ for the whole team).

2011: UPMC Convergence 15k euros (no salaries). Co-investigator with Philippe Thomen (UPMC).

2009: INFN (Istituto Nazionale per la Fisica Nucleare) PI11 (20k euros for the Milan Theory Group)

2008-9: Royal Society travel grant (12k pounds) with P. Cicuta (Cavendish Laboratory, Cambridge).

2008-2011: PUR University of Milan. "Applicazioni della teoria dei campi classica e quantistica: aspetti formali, fenomenologici e statistici" (31k euros for the young researchers of the Theory Group, PI Dr A. Vicini)

Languages

Italian mother tongue.
English, advanced, written and spoken.
French, intermediate.
Basic Dutch.

Student Supervision and Teaching

Supervised Postdocs and PhD Students:

2020- Sakhshi Khaiwal. PhD student, University of Nice Sophia Antipolis / IRCAN Nice. Co-Supervisor with Gianni Liti and Agnese Seminara.
2018- Ilaria Iuliani. PhD student, Paris PSL University. Co-Supervisor with Bianca Sclavi.
2019- Simone Pompei. Postdoc. Evolution of aneuploidy and drig resistance. Only Supervisor.
2019- Ludovico Calabrese. PhD student. Growth laws in mammalian cells. Only Supervisor.
2017- Orso Maria Romano. Postdoc, HFSP. Single-cell growth models. Only Supervisor.

Student Supervision and Teaching (continued)

2016-2017 Joachim Rambeau. Postdoc, HFSP. Single-cell gene expression and physiology of chromosome organization. Only Supervisor.

2015-2017 Marco Gherardi. Postdoc, HFSP. Polymer physics and bacterial chromosome organization. Only Supervisor.

2015-2017 Malik Yousuf. Postdoc, CEFIPRA. Horizontal transfer and nucleoid structure. Co-Supervisor with Bianca Sclavi.

2014-2017 Eleonora de Lazzari. PhD Student, UPMC. Gene families distributions across bacterial genomes: from models to evolutionary genomics data. EDpif PhD School, UPMC, Paris, Only Supervisor.

2014-2016 Qing Zhang. Postdoc. Replication kinetics and cell growth. ISC/CALSIMLAB Postdoc UPMC Paris. Only Supervisor.

2011-2014 Vittore Scolari. PhD Student, UPMC Paris and NCBS Bangalore. Physics of bacterial nucleoid organization and large-scale gene expression. Co-supervision with Ashwin Seshasayee, NCBS India. Funded by a UNESCO fellowship for the scientific collaboration between first- and third-world countries.

2011-2013 Matteo Osella. Postdoc. Nucleoid Organization and Population Heterogeneity. UPMC Paris. Only Supervisor.

2010-2012 Mina Zarei. Postdoc. Nucleoid Organization and Transcription Networks. UPMC Paris and Univ. of Milan. Only Supervisor.

2009-2012 Matthew Grant. PhD Student. Bacterial growth physiology. Univ. of Cambridge. Co-supervisor (with P. Cicuta).

2007-2010 Luigi Grassi. PhD Student. New and old in thee light of evolution. Univ. of Turin, IT. Co-supervisor (with M. Caselle).

2004-2008 Isaac Llopis. PhD Student, Univ. of Barcelona. Simulations of Filaments with Hydrodynamic Interactions. Co-supervisor (with I. Pagonabarraga).

Supervised Students:

2019-20 Alberto Geroldi. Innovation and genome complexity across domains of life. Grade 91/110.

2019-20 Giorgio Tallarico. Emergent laws in cell growth during nutrient upshifts. Grade 93/110.

2019-20 Martina Colombo. Timescale and loss-gain trade-offs in the evolution of prokaryotic genome complexity ,Äì a statistical physics approach. Grade 94/110.

2019 Andrea Mammola. Modelling compacted DNA by macromolecular crowders and bridging proteins. Undergraduate Thesis, Univ. of Milan. Grade 110/110 *cum laude*.

2019 Mattia Corigliano. A Statistical Physics Approach to Drug Resistance and Drug Tolerance in Cancer. Undergraduate Thesis, Univ. of Milan. Grade 110/110 *cum laude*.

2019 Adalberto Valsecchi. Statistical physics of latent representations in machine learning. Undergraduate Thesis, Univ. of Milan. Grade 110/110 *cum laude*.

2019 Jacopo Ciccoianni. Inference of dependency structures by occurrence. Master Thesis, Univ. of Milan. Grade 102/110.

2018 Ludovico Calabrese. Genome evolutionary dynamics and constrained statistical models of gene content. Master Thesis, Univ. of Milan. Grade 107/110.

2018 Rossana Droghetti. Evolution of the yeast replication program. Undergraduate Thesis, Univ. of Milan. Grade 106/110.

2017-2018 Francesco Borra. Generalization potential of a perceptron. Master Thesis, Univ. of Milan (co-supervised with Marco Gherardi, Sergio Caracciolo). Grade 110/110 *cum laude*.

2017-2018 Pietro Rossi. Model of the cytoplasm as a disordered system. Master Thesis, Univ. of Milan (co-supervised with Marco Gherardi). Grade 98/110.

2017 Jacopo Schiavon. Takens' theorem for inference of causality. Master Thesis, Univ. of Padova.

2017 Ilaria Iuliani. Gene expression homeostasis in single E. coli cells. Erasmus Internship.

2016-2017 Matteo Negri. Role of bridging-protein binding sites in chromosome folding. Master Thesis. Univ. of Milan (co-supervised with Guido Tiana). Grade 110/110 *cum laude*.

2016-2017 Luca Vismara. A particle-statistics description of gene families across genomes. Master Thesis. Univ. of Milan. Grade 110/110 *cum laude*.

2016 Sebastiano Ariosto. Probe-size effects in chromosomal loci tracking: a Rouse-model approach. Undergraduate Thesis. Univ. of Milan. Grade 105/110.

2015-2016 Jacopo Marchi. Stochastic models of the E. coli cell cycle. Univ. of Milan, Master 2 stage UPMC and Master Thesis, University of Milan. Grade 110/110 *cum laude*.

2015-2016 Francesco Penone. Gene-family distributions in Matagenomics data. Univ. of Milan, Master 2 stage UPMC and Master Thesis, University of Milan. Grade 110/110 *cum laude*.

Student Supervision and Teaching (continued)

2015 Anna Musselli. Modelling gain-loss dynamics of horizontal transfer in bacterial genomes. Univ. of Pavia. Erasmus Placement, Master 2 stage.

2015-2016 Ludovico Calabrese. Active movements in the subdiffusion of chromosomal loci. Undergraduate Thesis. Univ. of Milan. Grade 105/110.

2015 Andrea Silva. Inference of dependency networks between gene families. Univ. of Milan. Master 1 Stage UPMC.

2013 Andrea Cavallone. Models of clonal interference. Master Thesis University of Turin.

2013 Renaud Dessalles. Division dynamics of single E. coli cells. Master 2 Stage, Mathématiques pour les sciences du vivants, ENSTA Paris Tech.

2011-2012 Maria Fumagalli. Stochastic models of evolving bacterial populations under controlled conditions. Master Thesis. Univ. of Milan. Grade 110/110 *cum laude*.

2012 Stefano Brasca. Horizontal transfer dynamics in bacterial genomes. Undergraduate Thesis. Univ. of Milan. Grade 101/110.

2012 Giulio Fatti. Evolutionary models for asexual reproduction. Undergraduate Thesis. Univ. of Milan. Grade 101/110.

2012 Filippo Marchetti. Replication kinetics of the yeast genome. Undergraduate Thesis. Univ. of Milan. Grade

2012 Maria Cristina Romano. Undergraduate Thesis. Univ. of Milan. A collisional model for gene horizontal transfer in a bacterial "gas". Grade 100/110

2010-11 Orso Maria Romano. Modelling DNA-replication kinetics with a discrete origins nucleation-and-growth model. Undergraduate Thesis. Univ. of Milan. Grade 103/110, French Grade 16.

2010-11 Giulia Malaguti. Genome evolution through chromosomal rearrangements. A statistical mechanics approach. Master Thesis. Univ. of Milan. Grade 110/110 *cum laude*.

2010-11 Elisa Brambilla. Experimental and data analysis techniques for measuring gene expression of bacterial endogenous regulatory circuits at varying growth rate. Master Thesis. Univ. of Milan and UPMC Paris. Grade 110/110 *cum laude*.

2010 Enrnesto Giussani. The gene dnaA e and the initiation of replication in E.coli, an experimental analysis. Undergraduate Thesis. Univ. of Milan. Grade 107/110.

2010 Michele Biella. Statistical models for the growth of a genome in a finite universe of homology classes. Undergraduate Thesis. Univ. of Milan. Grade 110/110 *cum laude*.

2010 Marco Grisi. Tracking of fluorescent loci on the E. coli nucleoid. Undergraduate Thesis. Univ. of Milan. Grade 110/110 *cum laude*.

2010 Andrea Angelini. Branched Polymer Model for the E. coli Chromosome Master Thesis. Univ. of Milan. Grade 107/110

2009 Matteo Giani. A Coloring Model for yeast transcription network evolution. Undergraduate Thesis. Univ. of Milan. Grade 107/110

2009 Arianna Bottinelli. Statistical Models of Constrained Evolution for Protein Interaction Networks. Master Thesis. Univ. of Milan. Grade 110/110 *cum laude*

2009-2010 Vittore Scolari. DNA Conformation and the transcriptional regulation network. Master Thesis. Univ. of Milan. Grade 110/110 *cum laude*

2009-2010 Gabriele Micali. Transcription network evolution by duplication-innovation. Grade 100/110. Undergraduate Thesis. Univ. of Milan.

2009-2010 Mattia Fiorentini. Correlations between colloidal particles driven by optical traps. Undergraduate Thesis. Univ. of Milan. Grade 100/110

2009 Stefano Minoia. Undergraduate Thesis. Correlation functions for linear arrays of trapped spheres at low Reynolds numbers. Univ. of Milan, IT. Grade 110/110 *cum laude*

2009 Giulia Malaguti. Undergraduate Thesis. Bacterial Gene Expression, Transcription Network and DNA geometry. Univ. of Milan, IT. Grade 110/110 *cum laude*

2009 Massimiliano Baraldi. Synchronization of minimal systems in low-Reynolds number fluids. Undergraduate Thesis. Univ. of Milan, IT. Grade 110/110 *cum laude*

2009 Jacopo Grilli. Undergraduate Thesis. Univ. of Milan, IT. Functional Content of Genomes, Multiscaling and Chinese Restaurant Process. Grade 110/110 *cum laude*

2009 Thomas Vassallo. Anomalous finite-size effects of the Chinese Restaurant Process. Undergraduate Thesis. Univ. of Milan, IT. Grade 107/110.

2009 Andreina Chietera. Theory and Experiments for the oscillating nrd Transcriptional Self-regulator in E. coli. Undergraduate Thesis. Univ. of Milan, IT. Grade 110/110.

2008-9 Maria Fumagalli. Application of the Belief Propagation Algorithm to the Whole-Genome-Duplication Network of Yeast. Undergraduate Thesis. Univ. of Milan, IT. Grade 110/110 *cum laude*.

2008-9 Francesco Garue. Spin Models for the Whole-Genome-Duplication Transcription Network of yeast. Master Thesis. Univ. of Milan. Grade 110/110. entry*[2008-9] Manuel Buda. Timing of the replication-initiation circuit in E. coli. Master Thesis. Univ. of Milan. Grade 108/110.

Student Supervision and Teaching (continued)

2008 Pietro Rotondo. Hydrodynamics of a two-bead colloidal pump. Undergraduate Thesis Univ. of Milan. Grade 110/110 *cum laude*.

2007-8 Diana Fusco. Master Thesis. Transcriptional Plasticity After the Yeast Whole-Genome Duplication (in collaboration with M. Caselle, Turin). Grade 110/110 *cum laude*.

2007-8 Luca Ciandrini. Role of Topology in Dynamic Boolean Network Models. Master Thesis Univ. of Pavia IT. Grade 110/110 *cum laude*

2008 Elisa Brambilla. Introducing Domain Specificity in a Duplication/Innovation/Loss Model for Proteomes. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*.

2008 Andrea Angelini. Evolution of a Proteome by Duplication, Innovation and Loss of Domains. Undergraduate Thesis, Univ. of Milan, IT. Grade 107/110.

2007 Marco Leoni. Master Thesis. Hydrodynamic Interactions and Artificial Cilia. Grade 110/110 *cum laude*. Co-supervisor (with P. Cicuta).

2007 Roberto Bondesan. Swimming Microfilaments. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*. Co-supervisor (with P. Cicuta).

2007 Ulisse Ferrari. A quantitative approach to the DnaA Promoter. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*. Co-supervisor (with B. Sclavi)

2007 Alessandro Amato. Size Scaling in the Chinese Restaurant Process. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*.

2007 Vittore Scolari. Clustering of Genomes Using Domain Usage. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110.

2007 Alessandro Motta. Dynamic Transitions and Feedback in Boolean Network Models. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*.

2007 Philip Heijning. Master Thesis (Erasmus Project). Evolution of Protein Domains. Univ. of Milan, IT.

2006-7 Alessandro Sellerio. Master Thesis. Evolution of Transcription Networks. Univ. of Milan, IT. Grade 110/110 *cum laude*.

2006-7 Salvatore Mandrà. Master Thesis. Boolean Optimization Models of Transcription Networks. Univ. of Milan, IT. Grade 110/110 *cum laude*. Co-supervisor (with B. Bassetti)

2006 Paolo Malgaretti. Master Thesis “Modelli Evolutivi in Reti Genetiche”, Univ. of Milan, IT. Grade 110/110. Co-supervisor (with F. Capuani)

2005-6 Carlo Maffi. Master Thesis “Dynamical Properties of Boolean Models Inspired to Transcriptional Regulation Networks”, Univ. of Milan, IT. Grade 110/110 *cum laude*.

2005-6 Diana Fusco. Undergraduate Thesis, Univ. of Milan, IT. Grade 110/110 *cum laude*.

2003 Enrico Conti. Post-master stage, “Microtubules in Confined Geometries”, AMOLF, NL.

2002 Chris Retif. Master Thesis work, “Lithographic Fabrication of Microchambers”, AMOLF, NL.

Teaching Statement:

I typically like to work with advanced students and prefer a "hands on" approach, where students are stimulated to manipulate the subject and use it as a flexible tool, rather than to assimilate it as a static construct. I consider teaching an important occasion to deepen (and refresh) my understanding of elementary and advanced topics. I believe that fun is essential in learning.

Teaching:

2016-2017 PhD Course “Interdisciplinary Applications of Statistical Mechanics” University of Padova, Italy (24 hours + supervision of 40h individual hands-on projects)

2016 Pre-doctoral school in Quantitative Biology - July 18th- 29th, 2016 | IFOM, Milan - Italy. Lecture "Growth-laws and single-cell physiology" (2 hours).

2014 The Abdus Salam ICTP/SISSA Spring College on the Physics of Complex Systems, Trieste, IT. Course “Elements of Statistical Biological Physics” (10 hours).

2009- Course “Computational Methods in Theoretical Physics” at the University of Milan. Complex Networks module (25 hours/ year + supervision of 40h individual hands-on projects).

2008- Lectures for the Doctorate School of “Complex Biological Systems” at the University of Turin (2-3 hours/year). Since 2012, organization of one lecture day (8 hours/year).

2012-2014 Lectures for the L3 course “Modélisation en biologie” at the École Normale Supérieure Paris (9 hours / year).

2012-2014 Lectures for the Erasmus mondus Master course “Introduction to Biophysics” at the École Normale Supérieure Cachan (2 hours / year).

2012 PhD Course on polymer physics, Doctoral Scool in Physics, University of Turin (10 hours).

Student Supervision and Teaching (continued)

2004-2009	Lectures on advanced themes of biological physics in connection with the course of Statistical Mechanics held by Bruno Bassetti in Milano (about 4-8 hours /year).
2002	Lectures on molecular motors, EMBO Practical course “Plant cell biology” Wageningen, NL (8 hours).
1997-2000	Guide at the National Science Museum of Milano.

Publications

107 Publications in international peer-reviewed journals. 3 Refereed proceedings. 5 Book Chapters. 2 Theses.

3527 Citations (Google Scholar). H-index 29 (Google Scholar), 23 (Scopus / Web of Science)

In Peer-reviewed Scientific Journals

(square brackets [ ] indicate author position)

Preprints

2020

M Cristofalo, CA Marrano, D Salerno, R Corti, V Cassina, A Mammola, M Gherardi, B Sclavi, M Cosentino Lagomarsino, F Mantegazza **Cooperative effects on the compaction of DNA fragments by the nucleoid protein H-NS and the crowding agent PEG probed by Magnetic Tweezers** Biochimica et Biophysica Acta (BBA)-General Subjects 1864 (12), 129725 2020 [IX]

Q Zhang, E Brambilla, R Li, H Shi, M Cosentino Lagomarsino, B Sclavi **A decrease in transcription capacity limits growth rate upon translation inhibition**. Msystems 5 (5) 2020 [V]

M Wlodarski, L Mancini, B Raciti, B Sclavi, M Cosentino Lagomarsino, P Cicuta **Cytosolic Crowding Drives the Dynamics of Both Genome and Cytosol in Escherichia coli Challenged with Sub-lethal Antibiotic Treatments** Iscience 23 (10), 101560

Anna Tovo, Peter Menzel, Anders Krogh, Marco Cosentino Lagomarsino, Samir Suweis **Taxonomic classification method for metagenomics based on core protein families with Core-Kaiju**. Nucleic Acids Research, Volume 48, Issue 16, Page e93, 2020 [IV]

Rotondo P., Cosentino Lagomarsino M., Gherardi M. **Counting the learnable functions of geometrically structured data** Physical Review Research 2 (2), 023169, 2020 [II]

Nastaly, P., Purushothaman, D., Marchesi, S., Poli, A., Lendenmann, T., Kidiyoor, G. R., Beznoussenko, G. V., Lavore, S., Romano, O. M., Poulikakos, D., Cosentino Lagomarsino, M., Mironov, A. A., Ferrari, A. and Maiuri, P. **Role of the nuclear membrane protein Emerin in front-rear polarity of the nucleus**. Nature communications, 11(1), 2122, 2020 [XI]

Romano O.M., Cosentino Lagomarsino M. **Single rod-shaped cell fluctuations from stochastic surface and volume growth rates** Physical Review E 101 (4), 042403 2020 [last]

M. Yousuf, I. Iuliani, R. T. Veetil, A. Seshasayee, B. Sclavi, M. Cosentino Lagomarsino **Early fate of Exogenous promoters in *E. coli***. Nucleic acids research 48 (5), 2348-2356, 2020 [last]

2019

M. Russo, G. Crisafulli, A. Sogari, N. M. Reilly, S. Arena, S. Lamba, A. Bartolini, V. Amodio, A; Magrì, L. Novara, I. Sarotto, Z. D. Nagel, C. G. Piett, A. Amatu, A. Sartore-Bianchi, S. Siena, A. Bertotti, L. Trusolino, M. Corigliano, M. Gherardi, M. Cosentino Lagomarsino, F. Di Nicolantonio, A. Bardelli. **Adaptive mutability of colorectal cancers in response to targeted therapies**. Science 366 6472, 1473-1480 2019 (Commentary by M. Gerlingher on the same issue).

C. Cadart and L. Venkova, P. Recho, M. Cosentino Lagomarsino, M. Piel. **The physics of cell-size regulation across timescales.** Nature Physics 15, 993-1004, 2019 [co-last]

Corno A, Chiroli E, Gross F, Vernieri C, Matafora V, Maffini S, Cosentino Lagomarsino M, Bachi A, Ciliberto A. **Cellular response upon proliferation in the presence of an active mitotic checkpoint.** Life Sci Alliance 2(3) 2019 [VII].

Publications (continued)

R. Annunziata, A. Ritter, A.E. Fortunato, S. Cheminant-Navarro, N. Agier, M.JJ Huysman, P. Winge, A. Bones, F. Bouget, M. Cosentino Lagomarsino, J.P. Bouly, A. Falciatore **A bHLH-PAS protein regulates light-dependent rhythmic processes in the marine diatom Phaeodactylum tricornutum** PNAS 116 (26), 13137-13142 2019 [IX]

Francesco Borra, Marco Cosentino Lagomarsino, Pietro Rotondo and Marco Gherardi **Generalization from correlated sets of patterns in the perceptron** J. Phys A: Math Theor. 10.1088/1751-8121/ab3709 2019 [II]

G. Teza, S. Suweis, M. Gherardi, A. Maritan, M. Cosentino Lagomarsino **A network model of conviction-driven social segregation** Phys. Rev. E 99, 032310 2019 [last].

2018

Gabriele Micali, Jacopo Grilli, Matteo Osella, Marco Cosentino Lagomarsino **Concurrent processes set E. coli cell division** Science Advances 4:11 eaau3324 2018 [last]

Gabriele Micali, Jacopo Grilli, Jacopo Marchi, Matteo Osella, Marco Cosentino Lagomarsino **Dissecting the control mechanisms for DNA replication and cell division in E. coli** Cell Reports S2211 1247(18) 31506-7 2018 [last]

Shi Yu, Julian Sheats, Pietro Cicuta, Bianca Sclavi, Marco Cosentino Lagomarsino, Kevin D. Dorfman **Subdiffusion of loci and cytoplasmic particles are different in compressed Escherichia coli cells**, Communications Biology 1, 176 2018 [V]

Matteo Negri, Marco Gherardi, Guido Tiana and Marco Cosentino Lagomarsino, **Spontaneous domain formation in disordered copolymers as a mechanism for chromosome structuring** Soft Matter, 14, 6128-6136 2018 [last]

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Marco Gherardi, Vittore Scolari, Remus Thei Dame, and Marco Cosentino Lagomarsino, "Chromosome Structure and Dynamics in Bacteria: Theory and Experiments", in **Modeling the 3D Conformation of Genomes** - 1st Edition ed. Guido Tiana, Luca Giorgetti CRC Press Series in Computational Biophysics ISBN 9781138500792 2018

M. Gherardi and M. Cosentino Lagomarsino, "Procedures for model-guided data analysis of chromosomal loci dynamics at short time scales", ed. O. Espeli. Springer Publishing Company, Incorporated, **Methods in Molecular Biology** 1624:291-307. The Bacterial Nucleoid - Methods and Protocols DOI 10.1007/978-1-4939-7098-8_21 ISBN 1978-1-4939-7097-1 2017

Grassi, L., Grilli, J., Cosentino Lagomarsino, M. "Metagenomic Potential for Understanding Horizontal Gene Transfer" in **Encyclopedia of Metagenomics** Springer New York. DOI 10.1007/978-1-4614-6418-1_704-4 2014.

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HDR Thesis "A statistical-physics exploration of the proteome." UPMC, Paris 2011.

Phd Thesis "Biologically Inspired Problems Concerning Semiflexible Filaments: Organization in Plant Cell Geometries, Hydrodynamics of Propulsion". ISBN: 90-77209-08-5. AMOLF, Amsterdam 2004.

Scientific Writings for a General Audience

Cosentino Lagomarsino, M. **Viaggi nello spazio e viaggi mentali nel futuro.** . Prisma, 3, December 2018, (https://www.prismamagazine.it).

Cosentino Lagomarsino, M., Bassetti, B. **Systems Biology tra buzzword e realtà**. XlaTangente June 2008 (http://www.xlatangente.it).

Cosentino Lagomarsino, M. **Corti circuiti batterici**. XlaTangente September 2008 (http://www.xlatangente.it).

Conference Contributions, Lectures, Seminars

Organized Conferences [raised budget in brackets]

Institute of Physics / Society of Biology Conference "Quantitative Methods in Gene Regulation V" IOP London, UK, 9-10 Dec 2019. [20 keuros]

Summer School "Model-guided Data Science". Lake Como school of Advanced Studies, September 2-6 2019

Aspen Center for Physics workshop "Information Processing in Single Cells" July 7-28 2019.

Conference Contributions, Lectures, Seminars (continued)

3rd IFOM Symposium “Evolution, Resistance and Cancer” October 29-30, 2018 IFOM, Milan - Italy [5 Keuros]

Group Retreat - “Statistical physics of cells and genomes” 7-11 May 2018 - Porto Conte Ricerche - Alghero Italy

Institute of Physics / Society of Biology Conference “Quantitative Methods in Gene Regulation IV” Corpus Christi College, Cambridge, UK, 18-19 Dec 2017. [20 keuros]

“1st IFOM-CQB q-Bio workshop” IFOM, Milan, February 20-21, 2017. Main Organizer.

“Quantitative Laws II: from physiology to ecology, from interaction structures to collective behavior” Lake Como School of Complex Systems. Como 13-25 June 2016. [5̃0 keuros]

Workshop of the Complex Systems Group, Physics Dept., University of Milan. Milan, 28 Jan 2016.

Institute of Physics / Society of Biology Conference “Quantitative Methods in Gene Regulation III” Corpus Christi College, Cambridge, UK, 7-8 Dec 2015. [20 keuros]

Workshop “Micro-flow and Survival”, Lorentz Center, Leiden NL, April 20-24, 2015 [18 keuros]

"Seminaire Darwin" workshops, Paris (2014). [1̃000 euros per initiative]

2013-2018 (Six yearly events), “Paris Biological Physics Community Day”. One-day yearly workshop organized by young scientist. I am the sponsor and founder of this event, with A. Walczak. [2̃-3 keuros per initiative]

“Cross Disciplinary Genomics” Symposium, University Pierre et Marie Curie Paris, Since 2011 (*Five* 2-Day conferences held yearly in October-November). [12-14 keuros per initiative]

2011-2016. Yearly 1-day lecture symposium (held in February-March) for the PhD School of Complex Biological Systems, University of Turin, Italy.

Institute of Physics / Society of Biology Conference “Quantitative Methods in Gene Regulation II” Corpus Christi College, Cambridge, UK, 12-13 Dec 2013. [1̃5 keuros]

Organizer and Chair, “Workshop on Statistical Physics / Biology, and Quantitative Laws of Genome Evolution”, Lake Como June 2013, co-sponsored by the Lake Como School of Advanced Studies in Complex Systems and the iPoLS, International Physics of Living Systems Network. [4̃0 keuros]

“Giornata Scientifica tra Meccanica Statistica e Biologia”, 9 Nov 2012, physics department, University of Milan.

"Journées Darwin" conferences, held periodically at the Henri Poincaré institute, Paris (Twice yearly 2011-2013 - then discontinued). [about 1000 euros per initiative]

Workshop on mechanisms of global regulation in bacteria. October 8 2010, ENS Cachan, Paris. With B. Sclavi, sponsored by the Human Frontier Science Program Organization. [5̃ keuros]

2009-2018, I contributed organizing the UMR7238 lab seminars, with about 4-7 speakers/year.

Lectures, Seminars at Conferences or Institutions.

Cell Size and Growth Seminar, September 22 2020, Zoom. “Three hypotheses on the *E. coli* cell cycle, by model falsification” (invited seminar)

Workshop Single Cell Revolution 2.0, Molecular Biotechnology Center, Turin, June 14 2019 “ Quantifying cell-cycle progression in single cells” (invited conference talk)

Cologne Evolution Colloquium, Institute for Biological Physics, University of Cologne, April 3 2019 “Dynamics of Growth and Cell-cycle Progression in Single Cells” (invited seminar)

Institute for the Physics of Living Systems, University College London, 20 March 2019 “A quantitativa approach to cell-cycle progression in single cells.” (invited seminar)

Conference Contributions, Lectures, Seminars (continued)

Workshop: Multiscale analysis and reconstruction of chromatin and nuclear organization. Centro De Giorgi, Pisa, October 22-26 2018 “Bacterial chromosomes: specific behavior and general lessons” (invited conference talk).

PALM Summer School, Physical approaches to understanding microbial life. Paris, August 28 - September 6 2018. “Single-cell growth and division in *E. coli*” (invited lecture).

Santa Fe Institute, Santa Fe, USA July 3, 2018 “Component Systems” (invited seminar).

Radcliffe Seminar ’An Interdisciplinary Approach to the Bacterial Cell Cycle’, Harvard University June 25-26, 2018, Cambridge, MA, USA. “Concurrent processes set E. coli cell division” (invited conference talk).

Institut de Biologie Paris Seine, Paris, FR. Systems Biology discussion group. 18 June 2018 “The evolution of the temporal program of genome replication”, with Gilles Fischer (invited lecture).

SMILE (Stochastic Models for the Inference of Life Evolution) Team, College de France, Paris, FR. 18 June 2018 “Genomes, and metagenomes, as component systems” (invited seminar).

Institut Curie, Physics Department, 13 June 2018. “Chromosome organization and anomalous diffusion in the cell. Theoretical challenges from recent experiments” (invited seminar).

The Biology and Physics of Bacterial Chromosome Organisation 4,Äî6 June 2018 Hotel Golden Tulip, Leiden, The Netherlands. “Concurrent processes set E. coli cell division” (conference talk).

Evolution of Diversity 25 Feb - 2 Mar 2018. The Les Houches Physics School “Cell-division regulation in E. coli” (invited conference talk).

PhD School Complex and Biological Systems annual reports meeting. University of Turin 19 Oct 2017 “Coordination of growth and cell-cycle progression in single cells” (invited seminar).

IFOM SEMMminar. 27 Set 2017. “Shared genes in genomes and ecosystems” (invited seminar).

UNIMI Physics Dept Seminar. 15 May 2017. “Shared genes in genomes and ecosystems” (invited seminar).

Conference Physics of Living Systems (iPOLS) Network, June 25-29 2017 - Paris, France. “The empirical fluctuation pattern of E. coli division control” (conference talk).

Ecole Normale Superieure “EvolMol” seminar. 15 May 2017. “Shared genes in genomes and ecosystems” (invited seminar).

4th Workshop *FiSiCo*, Complex Systems Group, Physics Dept. University of Milan, 10 Feb 2017. “Genome invariants in microbial ecosystems” (conference talk).

Workshop. The physics and biology of invasion. Nice (FR), 1 December 2016. “Shared genes in genomes and ecosystems” (invited conference talk, keynote).

Physics Department, University of Padova. November 24, 2016. “Shared genes in genomes and ecosystems” (invited seminar).

EMBO Workshop Cell size regulation, Joachimsthal, Germany 14-18 September 2016, “Stochasticity and key steps of cell cycle homeostasis” (conference talk).

Conference. biophychrom2016: The Biology and Physics of Bacterial Chromosome Organization. Paris (France) 5-8 Sep 2016, “New puzzles on the physical nature of the nucleoid.” (conference talk).

Ecole Normale Superieure, Biophysics seminar, Paris November 26 2015, “Chromosome dynamics in E. coli” (invited seminar).

Workshop “Bringing Maths to Life (BMTL)”, October 19-21, 2015 Naples "Quantitative laws in gene-family evolution" (keynote conference talk).

Conference Contributions, Lectures, Seminars (continued)

Workshop “Living systems, from interaction patterns to critical behavior”. Venice, 16-19 September 2015 "Statistical laws in genome evolution" (keynote conference talk).

Workshop & Summer School on "Models of Life" 2-8 August 2015 Krogerup, Copenaghen, DK “Cell size fluctuations and cell cycle control in *E. coli*” (invited conference talk).

Institut Curie, Theory group seminar, Paris June 4 2015, “Scaling concepts in single-cell division” (invited seminar).

Conference Biophysics across scales : from single molecules to organisms international Physics of Living Systems (iPOLS) Network, June 1-3 2015 - Montpellier, France. “Fluctuations of size and cell-cycle control in single E. coli cells” (invited conference talk).

Advanced Workshop on "Interdisciplinary View in Chromosome Structure Function. The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, 15 - 19 September 2014. “Combined effects of self-adhesion and bridging in a prototypical nucleoid-inspired model” (invited conference talk).

Biozentrum Basel, September 8 2014, “Bacterial genome plasticity and gene-family abundance fluctuations” (invited seminar).

Workshop. The self-organised cytoplasm July 16, 2014 to July 18, 2014 CECAM-HQ-EPFL, Lausanne, Switzerland. “Organization of the E. coli nucleoid, a physicists’ perspective” (invited conference talk).

Conference The Biology and Physics of Bacterial Chromosomes - June 16-18, 2014 - Birmingham, UK. “Rapid chromosomal movements in Escherichia coli” (invited conference talk).

NYU Biology Guest Seminar, April 18th, 2014, Dept of Biology, New York University. “Rapid Chromosomal Movements in E. coli” (invited seminar).

Laufer Center Seminar April 15th, 2014, Stony Brook University, “Statistical laws in genome evolution” (invited seminar).

Seminar, Department of Molecular and Cellular Biology, Harvard University (Kleckner Group), Apr 7, 2014. “Concerted control of E. coli cell division” (invited seminar).

Mirny Lab Seminar, Massachusetts Institute of Technology, Boston, Apr 8th 2014. “Models and clues about the organization of the E. coli genome” (invited seminar).

Seminar at Institute for Theoretical Physics, KU Leuven (B). Apr 3 2014. “Physical Organization and Dynamics of the Bacterial Chromosome” (invited seminar).

Seminar. University of Padua, Physics Dept 6 Jun 2014. “Physics of the Bacterial Chromosome” (invited seminar).

Workshop. Games in Evolution: Models and Microbes, Paris, December 5-6, 2013. “Control of cell division in single *E. coli* cells” (invited conference talk).

Workshop *FiSiCo*, Complex Systems Group, Physics Dept. University of Milan. 11 Sept 2013. “Genome Partitioning Laws” (invited conference talk).

Meeting Complex and Emergent Behaviours in Biological Systems, School of Physics and Astronomy The University of Manchester, 15 May 2013. “Cell-size control in E.coli” (invited conference talk).

Seminar at SISSA, Trieste, 30 Oct 2012 “Statistical physics and emergent laws of genome composition.” (invited seminar).

Workshop. The Biology and Physics of Bacterial Genome Organization, 18-22 June 2012 Lorentz Center Leiden (NL). “Apparent diffusion of chromosomal loci at short time scales, and possible physical interpretations” (invited conference talk).

Conference Contributions, Lectures, Seminars (continued)

CoSy Seminar, Centre for Interdisciplinary Mathematics, University of Uppsala. “Laws of genome composition, bringing monod’s "operon model" to the scale of genomics”, 29 May 2012 (invited seminar).

Seminar at NCBS (National Center for Biological Science) Bangalore, India. “Combinatorial and physical aspects in the large-scale organization of bacterial genomes.” Feb 9 2012 (invited seminar).

Seminar at the University of Grenoble Dec 16 2011. “Large-scale organization of bacterial genomes” (invited talk).

IOP Conference, Quantitative Methods in Gene Regulation Sep 22-23 2011, London (UK) “Genome Partitioning and Large-scale Transcriptional Regulation” (conference talk).

European Conference on Complex Systems 2011, Satellite Meeting on Hierarchy, Vienna Sep 12-16 2011, “Hierarchy in transcriptional regulation within and across the genomes” (invited conference talk).

Seminar at the Institute for Complex Systems ISC-PIF, Paris, May 11 2011, “Hierarchy in transcriptional regulation within and across the genomes” (invited seminar).

Laboratory for Systems Biology, RIKEN Center for Developmental Biology Kobe, Japan, December 1 2010 “DnaA and the timing of chromosome replication in E.coli. A systems biology modeling approach” (invited talk).

Yukawa Institute for Theoretical Physics, Kyoto University, Japan November 29 2010 “A model-system approach to biological fluid pumping” (invited talk).

Institute for Advanced Biosciences Keio University, Tsuruoka, Japan, November 25 2010. “Contiguous gene clusters respond to supercoiling and occupancy perturbations of the E. coli nucleoid” (invited talk).

Invited talk, Kaneko Lab, Department of Basic Science, The University of Tokyo, November 24 2010 “The recipe for a Genome. Scaling laws and partitioning in functional categories and evolutionary classes”(invited talk).

EMBO Conference, EMBL Heidelberg (DE), September 29 - October 3 2010. “Ordered structure of the transcription network inherited from the yeast whole-genome duplication” (conference talk).

BIOPHYS10 Conference, Arcidosso (IT), September 9-11 2010. “Ordered structure of the transcription network inherited from the yeast whole-genome duplication” (conference talk).

SMBE 2010 Conference, Society for Molecular Biology and Evolution, Lyon (FR), July 4-8 2010. “Ordered structure of the transcription network inherited from the yeast whole-genome duplication” (poster).

Invited talk, LPTMS, Dept of Physics, University of Paris-Sud (FR) July 10 2010. “The constrained growth of functional and evolutionary partitioning of a genome” (invited talk).

Invited talk, Dept of Theoretical Physics (LAPTH), University of Annecy (FR) 3 June 2010. “Scaling Laws in Genome Partitioning” (invited talk).

Conference. Colloque Theoretical Physics of Biological Systems, Institut Henri Poincare, 17-18 December 2009 “Scaling laws, evolution, and proteome partitioning” (invited talk).

Meeting. Journée Scientifique Gen-Dev, University Paris VI October 6 2009 “Timing of E. coli Replication Initiation” (invited talk).

Invited talk, Dept of Physics, University of Edinburgh (UK) June 16 2009. “Synchronization of colloidal oscillators” (invited talk).

Invited talk, Dept of Systems Biology, University of Aberdeen (UK) June 15 2009. “Scaling Laws in the Protein-domain Content of Genomes” (invited talk).

Conference. Biowire2009 Workshop, Cambridge (UK) June 11-12 2009. “Synchronization of colloidal oscillators” (invited conference talk).

Conference Contributions, Lectures, Seminars (continued)

Invited lecture. Ph.D Programme in Complexity in Post-genomic Biology, University of Torino, March 4, 2009. “Modeling Regulatory Circuits” (seminar).

ECCB09 Conference on Computational Biology, Genova (IT) March 18-20 2009. “Plasticity of the yeast transcription network after the whole-genome duplication” (poster).

Conference, RECOMB Meeting Systems Biology and Regulatory Genomics 2008, “Plasticity of the yeast transcription network after the whole-genome duplication”, MIT, Boston USA, 28 October - 2 November 2008 (poster).

Invited talk. ICTP Trieste, IT. August 13, 2008. “Domain Soup, Chinese Restaurant” (seminar).

Invited talk. Ecole Normale Superieure Cachan, FR, July 11, 2008. “Comparative topogical and evolutionary analysis of transcription networks” (seminar).

Invited talk. Physics Dept, University of Leiden, NL, April 9, 2008. “Domain Soup, Chinese Restaurant” (seminar).

Invited lecture. Ph.D Programme in Complexity in Post-genomic Biology, University of Torino, March 6, 2008. “Topological analysis of transcription networks” (seminar).

Talk. Sporadic Q-BIO seminar, Dep. of Physics, Univ of Milan, January 18 2008. “L’universo delle proteine come zuppa di domini. Ricette da un ristorante cinese” (seminar).

Invited talk. SYSBIOHEALTH Symposium 2007, Milan (IT) October 16-19, 2007. “A large-scale evolutionary approach to the analysis of transcription networks” (seminar).

Invited talk BIOPHYS07 Conference, Arcidosso (IT), September 3-5 2007. “Hierarchy and Feedback in the Evolution of Transcription Networks” (seminar).

Statphys 23 (IUPAP Conference on Statistical Physics), Genova (IT) 9-13 July 2007. “ ‘Hierarchy and feedback in transcription networks” (poster).

Conference, From Biophysics to Medicine KAIST Cavendish Workshop 28-30 June 2007, Univ. of Cambridge (UK), “Active Membranes, the Role of Ion Channels” (seminar).

Invited seminar, 26 March 2007, Dept of Pharmacology, Univ. of Pavia (IT), “Hierarchy, Feedback and the E. coli Transcription Network” (seminar).

Invited seminar, 1 November 2006, Univ. of Montpellier (FR), “Feedback and Hierarchy in the Evolution of the E. coli Transcription Network” (seminar).

Invited seminar, 24 October 2006, Dept of Physics, Univ. of Torino (IT), “Making Some Sense of the E. coli Transcription Network” (seminar).

Conference, CMSB (Computational Methods in Systems Biology), 18-19 October 2006, “Randomization and Feedback Properties of Directed Graphs Inspired by Gene Networks” (seminar).

Conference, XX Sitges Conference, “Functional Robustness in the E. Coli Transcription Network”, Sitges (Barcelona), 5-9 June 2006 (poster).

Invited seminar, 18 November 2005, Informatics Dept, University of Milan II “Bicocca” (IT). “Models of transcription networks” (seminar).

Conference, Juelich Soft Matter Days 2005, “Nonequilibrium membranes with ion conducting channels”, Bonn, 1-4 October 2005 (poster).

Conference, SoftComp Network Meeting, “Electrohydrodynamics of membranes with ion conducting units”, Bonn, 31-31 October 2005 (seminar).

Conference Contributions, Lectures, Seminars (continued)

Conference, “La biophysique théorique sur la Montagne Sainte-Genevieve” Paris, 30 June 2005. “A simple model of large scale transcriptional control”(seminar).

Invited seminar, 9 March 2005, Dept Fisica Fonamental, University of Barcelona (ES). “A simple model for the logico-chemical structure of a transcription network” (seminar).

Invited seminar, 14 February 2005, ESPCI Paris (FR). “A simple model for the logico-chemical Structure of a transcription network” (seminar).

Invited seminar, 23 June 2004, University of Montpellier (FR). “A physics point of view on the organization of cortical microtubules in interphase plant cells” (seminar).

Invited seminar, 9 June 2004, Physics Dept, University of Koeln (D). “A scenario for the problem of pre-prophase band formation in interphase plant cells” (seminar).

Fysisch Colloquium. 14 May 2004, Physics Dept, University of Leiden (NL). “Swimming Together” (seminar).

ALW Biophysics Conference, Lunteren (NL), September 29-30, 2003. Large Scale Instabilities Driven by Active Components in Filamentous Systems (poster).

4th European Biophysical Society Congress, Alicante, 5-9 July 2003. “Cortical Microtubules in Plant Cells. Benchmarking the Dynamic Spring” (poster).

PHYNECS meeting “Nonequilibrium Physics from Complex Fluids to Biological Systems” St. Feliu de Guixols, Spain, June 16-20, 2003. Seminar entitled “ The Physics of Plant Cell Cortex Microtubules” (seminar).

Invited seminar, 16 April 2003, Computer Science Dept., University of Crema (IT). “Dinamica di un filamento forzato in un fluido aristotelico” (seminar).

Invited seminar, 20 September 2002, Polymers and Colloids Group, Cavendish Lab, Cambridge (UK). "A physics point of view on the organization of microtubules in the cortex of plant cells" (seminar).

Invited seminar, 7 July 2002, Max Planck Institute for the Physics of Complex Systems. Dresden, (Germany) “Forced Swimming. Dynamics of a semiflexible filament in an Aristotelian Fluid” (seminar).

European Molecular Biology Organization Course on Plant Cell Biology. AMOLF Amsterdam (NL). 16-26 June 2002. “The Physics of Molecular Motors” (lecture).

VII convegno nazionale di Meccanica Statistica e dei Sistemi Complessi, Parma (IT), 3-5 June 2002. “Forced Swimming. Dynamics of a semiflexible filament in an Aristotelian Fluid” (poster).

Invited seminar at the Oncology Dept., Vrije Universiteit, Amsterdam, (NL). 3 May 2002. "A physics point of view on force generation, dynamics and organization of microtubules" (seminar).

Seminar at the Theory Group, Physics Dept., University of Milano (IT). 7 Jan 2002. “Nuoto forzato. Dinamica di un filamento elastico in un fluido aristotelico” (seminar).

Lecture at the Theory Dept, University of Milan (IT). May 14, 2001.” "Rowers" coupled hydrodynamically. Symmetry breaking, macroscopic flows, and metachronal waves (collective motions) by stochastic noise”(seminar).

ALW Biophysics Conference, Lunteren (NL), October 4-5, 2000. “Biological Rods: microtubules as a model system for the isotropic to nematic transition in a slit pore” (poster).

Lecture at the Theory Dept, TU Munich (GE), December 20,1999 . “A model for the Self Organization of Microtubules driven by Molecular Motors” (lecture).

XVI GNSR Meeting, Milan (IT), November 17-19, 1999. “On the self-organization of microtubules and molecular motors” (lecture).

Conference Contributions, Lectures, Seminars (continued)

IV National Conference of Statistical Physics, Parma (IT), June 23-25, 1999. “A model for the Self Organization of Microtubules driven by Molecular Motors” (lecture).

Relevant Attended Workshops, Programs and Schools

PALM Summer School, Physical approaches to understanding microbial life. Paris, FR, August 28 - September 6, 2018.

Understanding Microbial Communities; Function, Structure and Dynamics. Scientific Programme. Isaac Newton Institute (Cambridge UK), Aug 11 to Dec 19 2014.

Conference. 14th Human Frontiers Science Program (HFSP) Awardees Meeting. Lugano, Switzerland 6 - 9 July, 2014

Workshop. The Biology and Physics of Bacterial Genome Organization, Lorentz Center Leiden (NL) 18-22 June 2012.

Kavli Institute for Theoretical Physics Program on Microbial and Viral Evolution “Viral11”, February - March 2011.

EMBO Workshop. Evo-Devo meets Marine Ecology: New Frontiers in Ocean Science. 9-11 Oct 2009, Ischia, Napoli Italy.

Workshop, Evolvability: the evolution of evolution, Villa Monastero, Varenna (IT) April 2007.

Thematic Institute Complex Biological Networks: Gene Regulation and Protein Interaction, Turin, September 2005.

Interdisciplinary School: Noise and robustness in transcriptional regulatory networks, Calais, September 2005.

Dynamics of Biological Systems. Krogerup, Copenhagen, August 2002.

Fundamental Problems in Statistical Physics X. Altenberg, Germany. August 2001.

Han Sur Lesse (BG) Winter School On Theoretical Physical Chemistry. February 2001.

Most Relevant Scientific Visits

2018 Santa Fe Institute, two-weeks visit in June-July.

2016. Visiting Scientist, IFOM, the FIRC Institute of Molecular Oncology, Milan, Italy (several short visits over the year).

2016 - 2017 (6 months) Visiting Scientist, Maritan Group, Physics Department, University of Padova

April 2014. Brookhaven National Laboratory, USA. Visit Maslov Group.

February 2012. NCBS Bangalore India. Visit Seshasayee Group.

February - March 2011. University of California at Santa Barbara, Kavli Institute for Theoretical Physics Program - Microbial and Viral Evolution.

November-December 2010. Scientific Visits to Tokyo University / Yukhawa Institute Kyoto / KEIO University Tsuruoka/ RIKEN Kobe, Japan

June - September 2009. Visiting Scientist of the Biological and Soft Systems Group, Cavendish Laboratory, University of Cambridge.

2002 - 2004. Multiple visits for a long-term collaboration project with the Max Planck Institute for the Physics of Complex Systems (Dresden, Germany), group of Frank Jülicher.