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RESEARCH INTERESTS

- **Soft Matter** (Structure, Dynamics, Rheology, Fluctuations, Instabilities)
- **Biophysics** (Cell motility and jamming, Internal cell dynamics and microrheology)
- **Optical techniques** (Light and X-ray Scattering, Quantitative Microscopy)
- **Microgravity Experiments** (GRADFLEX: GRADient Driven FLuctuation EXperiment, NEUF-DIX: Non-Equilibrium Fluctuations during DIffusion in compleX liquids)

EDUCATION

Dec 2004 University of Milan, **PhD in Physics** (excellent), *Shadowgraphic study of convection in a colloidal suspension* (Supervisor: Marzio GIGLIO)
 Mar 2001 University of Milan, **Laurea in Physics** (110/110 cum laude), *Optical study of convective instabilities in binary mixtures heated from above* (in Italian)

RESEARCH EXPERIENCE

03/2015 – present *ASSOCIATE PROFESSOR OF APPLIED PHYSICS, BIOMETRA Dep., University of Milan, Italy*
 11/2007 – 02/2015 *ASSISTANT PROFESSOR OF APPLIED PHYSICS, BIOMETRA Dep., University of Milan, Italy*
 07/2010 – 08/2010 *VISITING RESEARCHER, Physics Department, University of Ottawa, Canada*
 11/2006 – 10/2007 *MARIE-CURIE IEF (FP6), Dep. of Physics, University of Fribourg, Switzerland*
 11/2004 – 10/2006 *POSTDOCTORAL RESEARCH ASSOCIATE, Dep. of Physics, University of Milan, Italy*

AWARDS AND FELLOWSHIPS: **Top Reviewers Award** for Sentinels of Science of Publons: Physics and Astronomy (Oct. 2015 - Sept. 2016); **Marie Curie Intraeuropean Fellowship (FP6)** (Nov. 2006-Oct. 2008); **Team Achievement Award** of the European Space Agency, for the space mission FOTON M3 (2006); **PhD Fellowship from University of Milan** (2001-2004); **PhD Fellowship from University of Insubria** (2001-2004, declined); **Young Scientist Award** at the Italian Conference of the Physics of Matter (2001).

PUBLICATION RECORD SUMMARY (SCOPUS: 886 citations, h-index=19)

55 peer reviewed publications (19 in journals with IF>5): 1 Nature Materials (in print), 1 Nature Physics, 2 Nature Communications, 1 Advanced Functional Materials, 4 PNAS, 7 PRL, 2 Biosensors&Bioelectronics, 1 Sci. Reports.

Articles published in the journal *Soft Matter*

[Structure and dynamics of concentration fluctuations in a non-equilibrium dense colloidal suspension](#) Giavazzi, Savorana, Vailati, **RC**, 12, 6588 (2016)

[Equilibrium gels of low-valence DNA nanostars: a colloidal model for strong glass formers](#) Biffi, **RC**, Nava, Bomboi, Sciortino, Bellini 11, 3132 (2015)

[Viscoelasticity of nematic liquid crystals at a glance](#) Giavazzi, Crotti, Speciale, Serra, Zanchetta, Trappe, Buscaglia, Bellini, **RC** 10, 3938 (2014)

[Digital Fourier Microscopy for Soft Matter Dynamics](#) Giavazzi, **RC**, **J Opt** 16 083001 (2014) **JOP Highlights of 2014**

[DNA-Based Soft Phases](#) Bellini, **RC**, Zanchetta, **Top Curr Chem** 318, 225 (2012)

[Exploring soft matter with x-rays: from the discovery of the DNA structure to the challenges of free electron lasers](#) Zanchetta, **RC**, **JPCM** 22, 323102 (2010)

[Giant thermophoresis of poly\(N-isopropylacrylamide\) microgel particles](#) Wongsuwarn, Vigolo, **RC**, Howe, Vailati, Piazza, Cicuta 8, 5857 (2012)

[Topological defects of nematic liquid crystals confined in porous networks](#) Serra, Vishnubhatla, Buscaglia, **RC**, Osellame, Cerullo, Bellini 7, 10945 (2011) **cover paper**

Invited review articles

[Near-field scattering techniques: Novel instrumentation and results from time and spatially resolved investigations of soft matter systems](#) **RC**, Vailati, **COCIS** 14, 416 (2009)

[New trends in light scattering](#) Scheffold, **RC**, **COCIS** 12, 50-57, (2007)

Soft matter articles in high impact journals

[Endocytic reawakening of motility in jammed epithelia](#) Malinverno, Corallino, Giavazzi, Bergert, Li, Disanza, Frittoli, Oldani, Martini, Lendenmann, Deflorian,

Beznoussenko, Leoni, Poulidakos, Ong, Uroz, Trepat, Parazzoli, Maiuri, Yu, Ferrari, **RC**, Scita, **Nature Materials**, in print (2017)

[Re-entrant DNA gels](#) Bomboi, Romano, Leo, Fernandez-Castanon, **RC**, Bellini, Bordi, Filetici, Sciortino, **Nature Commun** 7, 13191 (2016)

[Phase behavior and critical activated dynamics of limited-valence DNA nanostars](#) Biffi, **RC**, Bomboi, Paraboschi, Asselta, Sciortino, Bellini **PNAS** 110, 15633 (2013)

[Nematic liquid crystals embedded in cubic microlattices: memory effects and bistable pixels](#) Serra, Eaton, **RC**, Buscaglia, Cerullo, Osellame, Bellini, **Adv. Funct. Mater.** 23, 3990 (2013)

[Characterizing concentrated, multiply-scattering and actively-driven fluorescent systems with confocal differential dynamic microscopy](#) Lu, Giavazzi, Angelini, Zaccarelli, Jargstorff, Schofield, Wilking, Romanowsky, Weitz, **RC**, **PRL** 108, 218103 (2012)

[Liquid crystal self-assembly of random-sequence DNA oligomers](#) Bellini, Zanchetta, Fraccia, **RC**, Tsai, Smith, Moran, Walba, Clark, **PNAS** 109, 1110 (2012)

Other selected soft matter articles (after 2009)

[The NEUF-DIX Space Project - Non-equilibrium fluctuations during Diffusion in complex liquids](#) Baaske, Bataller, Braibanti, Carpineti, **RC**, Croccolo, Donev, Köhler, Ortiz de Zarate, Vailati, **EPJE** 39, 119 (2016)

[Equilibrium and non-equilibrium concentration fluctuations in a critical binary mixture](#) Giavazzi, Fornasieri, Vailati, **RC**, **EPJE** 39, 103 (2016)

[Simultaneous characterization of rotational and translational diffusion of optically anisotropic particles by optical microscopy](#) Giavazzi, Haro-Pérez, **RC**, **JPCM** 28, 195201 (2016)

[Fractal fronts of diffusion in microgravity](#) Vailati, **RC**, Mazzoni, Takacs, Cannell, Giglio, **Nature Commun.** 2, 290 (2011)

[Right-handed double-helix ultrashort DNA yields chiral nematic phases with both right- and left-handed director twist](#) Zanchetta, Giavazzi, Nakata, Buscaglia, **RC**, Clark, Bellini **PNAS** 107, 17497 (2010)

[Bistable heat transfer in a nanofluid](#) Donzelli, **RC**, Vailati, **PRL** 102, 104503 (2009) covered by **Physical Review Focus**, "[Cooking up a smart nanofluid](#)"

[Differential dynamic microscopy: Probing wavevector-dependent dynamics with a microscope](#) **RC**, Trappe, **PRL** 100, 188102 (2008) **editorial suggestion**

[X-ray scattering information obtained from near-field speckle](#) **RC**, Peverini, Potenza, Robert, Bösecke, Giglio, **Nature Physics** 4, 238-243 (2008)

[Scaling Behavior for the Onset of Convection in a Colloidal Suspension](#) **RC**, Mazzoni, Vailati, Giglio **PRL** 94, 064501, (2005)

[Equilibrium gels of trivalent DNA-nanostars: effect of the ionic strength on the dynamics](#) Bomboi, Biffi, **RC**, Bordi, Bellini, Sciortino, **EPJE** 38, 64 (2015)

[Kinetics of colloidal fractal aggregation by differential dynamic microscopy](#) Ferri, D'Angelo, Lee, Lotti, Pigazzini, Singh, **RC**, **EPJ-ST** 199, 139 (2011)

[Scattering information obtained by optical microscopy: Differential Dynamic Microscopy and beyond](#) Giavazzi, Brogioli, Trappe, Bellini, **RC**, **PRE** 80, 031403 (2009)

INVITED TALKS AND LECTURES: 18 invited talks for dep. seminars/colloquia (IT, DE, FR, USA, CA, CH, LU); 14 invited talks at international conferences and workshops, including one Gordon Research Conference (2007, New Hampshire) and one APS March Meeting (2009, Pittsburgh), 5 invited lectures at international schools on Quantitative Biology, Cell biophysics, Laser Applications.

ORGANISATION OF SCIENTIFIC MEETINGS: 1) Italian Soft Days 2016 (Milan, Italy). 2) Italian Soft Days 2014 (Rome, Italy). 3) CECAM Int. Workshop "DNA based self-assembly: theory, simulations and experiments" (2014, Wien, Austria). 4) 6th Int. Meeting on Thermodiffusion, (2004, Varenna, Italy).

TECHNOLOGICAL TRANSFER: **cofounder of the spinoff ProXentia** (development and marketing of label-free biosensors); **consultant for industries/companies** for the realization of advanced space instrumentation, optical testing and complex fluids characterization (RUAG Aerospace, LS Instruments, Klingner, Procter&Gamble)

REVIEWER ACTIVITY (verified profile available at <http://publons.com/author/294787/roberto-cerbino>) 114 reviews for 38 different journals including e.g. Soft Matter, PRL, PRE, PLOS ONE, EPJE, New Journal of Phys., Biophys. J., PNAS, JPCM, Sci. Reports, PCCP, Langmuir, Nat. Comm., Eur. Biophys. J., AICHE J.

ONGOING FUNDING

- 2016 – **PI**, FONDAZIONE CARIPLO-REGIONE LOMBARDIA project "Light for Life (L4L)", 78k€
- 2016 – **Team member**, ESA Topical Team GRADFLEX2, 10k€
- 2015 – **PI**, Research contract with PROCTER&GAMBLE USA, 50k€
- 2013 – **Research Unit Head**, FIRB MIUR project "Anisotropies and non-equilibrium in soft matter: routes to the self-assembly of advanced materials", 775k€, in collaboration with E. Zaccarelli (PI) and S. Buzzaccaro