

CURRICULUM VITÆ Massimo Cencini

Personal data

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ResearcherID <http://www.researcherid.com/rid/C-1191-2008>
Google scholar <http://scholar.google.it/citations?user=cFpeKc0AAAAJ&hl=en>

Employment record

2008 – present Researcher at CNR
2004 – 2008 *Tenure Track* researcher at the “Statistical Mechanics and Complexity” INFM-CNR Research center, Department of Physics, University of Rome “La Sapienza”.
2003 – 2004 Research contract at “Statistical Mechanics and Complexity” INFM-CNR Research center, Department of Physics, University of Rome “La Sapienza”.
2002 – 2003 Post-doc within the European network “Non Ideal Turbulence”, at the Cassini Laboratory CNRS, Observatory of Nice (France).
2000 – 2001 Research contract at the Department of Physics, University of Rome “La Sapienza”
1999 – 2000 Post-doc at the Max-Planck Institute for the Physics of complex systems, Dresden (Germany).

Studies

1996 – 1999 PhD in Physics, University of Rome “La Sapienza”. Thesis (in English) *Characterization of complex behaviors in dynamical systems: beyond the Lyapunov exponent* defended on 9 February 2000.
1990 – 1996 Laurea in Physics, University of Rome “La Sapienza”. Master degree *cum laude*, Thesis (in Italian): *Anomalous scaling laws in a model of fully developed turbulence* defended on 31 May 1996.

Awards

2014 and 2015 Distinguished referee: The European Physical Journal (EPJ)
2011 Outstanding Referee of the American Physical Society

Publications

99 **1** book (460pp), **68** published or to appear on peer review international journals (among which **1** Phys. Reports, **1** Nature Comm., **10** Phys. Rev. Lett.), **5** book chapters, **17** conference proceedings, **1** divulgation of science, **4** others, **1** Phd Thesis , **1** Master Thesis.
h-index **23** (ISI-WOS), **27** (Google Scholar) [11 July 2016]

tot time cited **1750** (ISI-WOS), **2641** (Google Scholar) [11 July 2016]
5 most cited 168, 145, 136, 120, 75 (ISI-WOS), 271, 198, 191, 162, 119 (Google Scholar)

Italian Scientific Habilitation (ASN)

Associate Professor since 08/01/2014 Theoretical Physics [SSD 02/A2]
since 11/12/2013 Theoretical Condensed Matter Physics [SSD 02/B2]

Reviewer for: Physical Review Letters, Physical Review X, Physical Review E, Europhysics Letters, Physics of Fluids, Journal of Fluid Mechanics, Journal of Physics A, Physica Scripta, JSTAT, Physica D, Physica A, The European Physical Journal B, Nonlinear Processes in Geophysics, Journal of Theoretical Biology, Ecological Modeling

Projects ANR- Agence Nationale de la Recherche (Francia);
DFG- Deutsche Forschungsgemeinschaft (German Research Foundation)

Editorial Boards

2011-2013 Member of the editorial board *Scientific Reports* (Nature Publishing Group)
Guest editor (with F. Ginelli) special issue “Lyapunov analysis: from dynamical systems theory to applications” *Journal of Physics A: Mathematical and Theoretical*, Volume **46** published on 28 June 2013 (with 24 contributions)

2014 Co-Editor (with F. Cecconi, A. Puglisi, D. Vergni e A. Vulpiani) of the multiauthor book “Large deviations in physics: The legacy of the law of large numbers three centuries after” *Lecture Notes in Physics* Volume **885**, Springer-Verlag Berlin Heidelberg (2014)

2015-2016 Guest editor (with L. Biferale, A.S. Lanotte and M. Sbragaglia) of the Topical issue “Multi-scale phenomena in complex flows and flowing matter” published on *The European Journal of Physics E*

Students

2014/15 Supervisor of the master degree thesis in Physics at the University “Sapienza” of Rome of *Stefano Bianchi*, subject: Lagrangian transport in turbulent flows.

2010 Supervisor of the master degree thesis in Physics at the University “Sapienza” of Rome of *Sandro Iannaccone*, subject: population dynamics

2005 Tutor for the internship of *Bruno Deremble* from Ecole Normale Supérieure de Lyon (France) subject: Lagrangian transport in turbulent flows

2004/5 Supervisor of the master degree thesis in engineering of *Mauro Chinappi*, subject: transport of reacting substances.

Grants and participation to funded projects

2014- **Leader del Working Group** *Numerical Techniques: Complex flows e Member of Managing Committee Substitute COST Action MP1305 Flowing Matter*

2011-2013 Head of subdivision (66Keur) PRIN2009 “Fluctuations: from macroscopic systems to the nanoscale” funded by MIUR, Italy (National PI. Prof. A. Vulpiani).

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| 2009-2013 | Participant to the COST Action MP0806 "Particles in Turbulence" |
| 2007 | PI of the supercomputing project (25Khours) "Particles and Droplets in Geophysical Flows", CINECA, Italy |
| 2006 | PI of the supercomputing project (20Khours) "Turbulence in complex flows", CINECA, Italy |
| 2005-2006 | Participant to PRIN2005 <i>Statistical Mechanics of Complex systems</i> funded by MIUR, Italy |
| 2003-2004 | Participant to PRIN2003 <i>Complex and many body systems</i> funded by MIUR, Italy |
| 2004-2006 | Participant to the European Network <i>Fluid Mechanical Stirring and Mixing: the Lagrangian Approach</i> (HPRN-CT-2002-00300) |
| 2002-2003 | Participant to the European Network <i>Non-ideal Turbulence</i> (HPRN-CT-2000-00162) |

Visits

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| 05/2016 | Department of Physics, Harvard University, Cambridge (USA) |
| 10/2013 | ICTS-EDAS Indian Institute of Science, Bangalore (India) |
| 07/2012 | <i>Invited Scientist</i> Osservatorio della costa Azzurra, Nizza (France) |
| 03/2012 | KITCP Kavli Institute Beijing (China) |
| 12/2010 | Università di Granada (Spain) |
| 02/2009 | Istituto Niels Bohr, Copenagen (Denmark) |
| 02/2008 | Institute Pasteur, Parigi (France) |
| 05/2008 | Lorentz Center, Leida (The Neatherlands) |
| 01/2007 | Weizman Institute, Rehovot (Israel) |
| 08/2006 | Lorentz Center, Leida (The Neatherlands) |
| 07/2006 | Dipartimento di matematica Università di Warwick (UK) |
| 10/2005 | Dipartimento di matematica Università di Helsinki (Finland) |
| 07/2005 | Osservatorio della costa Azzurra, Nizza (France) |
| 09/2002 | Centro Internacional de Ciencias, UNAM Cuernavaca (Mexico) |
| 07/2002 | The Erwin Schrödinger International Institute for Mathematical Physics, Vienna (Austria) |
| 07/2001 | INLN, CNRS Valbonne (France) |

Conference and Scientific meetings organization

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| 03/2016 | Co-organizer of the International Workshop "Lagrangian transport: from complex flows to complex fluids" Università del Salento, Lecce (Italy) |
| 02/2016 | Co-organizer of the International Workshop "Microorganisms in turbulent flows" Lorentz Center, Leiden, (The Netherlands) |
| 07/2015 | Co-organizer of the International School "Non standard transport: From anomalous diffusion to reaction spreading in heterogeneous systems Gran Sasso Science Institute, L'Aquila, (Italy) |
| 03/2015 | Co-organizer of the International Workshop "Flowing Matter Across the Scales Istituto Nazionale di Studi Romani, Roma (Italy) |

- 09/2014 Co-organizer of the International Conference “Strolling on Chaos, Turbulence and Statistical Mechanics” Dipartimento di Fisica, Università “Sapienza” Roma (Italy)
- 05/2014 Co-organizer of the International Workshop “Active Fluids: new challenges from experiments to high-performance computing” Mariehamn, Åland (Finland)
- 09/2013 Co-organizer of the International Conference “Large deviations and rare events in physics and biology” Dept. Physics University “Sapienza” Rome
- 09/2012 Member of the local organizing committee of the 9th European Fluid Mechanics Conference (EFMC9), Rome, Italy [about 650 participants from 44 countries]
- 05/2008 Co-organizer of the workshop “Network Synchronization: from dynamical systems to neuroscience” Lorentz Center (Leiden, The Netherlands)
- 04/2007 Convener of the session “Turbulence and dispersion in particle-laden geophysical flows: theory and models” EGU (European Geosciences Union) General Assembly, Vienna (Austria)
- 06/2003 Co-organizer of the workshop *Lagrangian problems in turbulence* held at the “Statistical Mechanics and Complexity” INFM-CNR Research center, Rome (Italy)

Scientific divulgation

- 12/2012 Conference “Si può prevedere il futuro? Ruolo e limiti della scienza” (“Is it possible to predict the future? Role and limits of Science”, at MAXXI B.A.S.E. (National Museum of XXI century arts, in Rome)
- 2007-2009 “Cafe Scientifique” in collaboration with the cultural association *FormaScienza*

Main talks

- Gyrotactic Phytoplankton in turbulent flows* (**invited**) Third International Workshop “Nonlinear processes in oceanic and atmospheric flows” ICMAT-UAM, Madrid, Spain (2016)
- Turbulent unmixing of phytoplankton* (**invited**) Widely Applied Math (WAM) Seminar Harvard University, John A. Paulson School of Engineering and Applied Sciences Quantitative biology seminar. Cambridge, USA (2016).
- Gyrotactic Phytoplankton Swimming in a Flow* (**invited**) Quantitative biology seminar. Trieste, Italy (2014).
- Microorganisms swimming in a flow* (**invited**) XIX National conference on statistical physics and complex systems. Parma, Italia (2014).
- Nonlinear superposition of direct and inverse cascades in 2d-turbulence* (**invited**) Seminario al “Rencontres Niçoises de Mécanique des Fluides”, Université de Nice Sophia Antipolis, Nizza, Francia (2013).
- Microorganisms swimming in turbulence* (**invited**) Conferenza per gli 80 anni di Tito Fortunato Arecchi, “Il Futuro è quantum”, Istituto Galileo Galilei, Firenze (2013).
- Clustering of swimming microorganisms in turbulent flows* (**invited**). ICTS-EDAS Discussion meeting on “Transport of Particles in Turbulent Flows: Experimental, Computational and Theoretical Investigations”, Indian Institute of Science, Bangalore, India (2013).

- Gyrotactic clustering from turbulent acceleration* . European Turbulence Conference 14, ENS-Lione, Francia (2013).
- Nonlinear Superposition of Direct and Inverse Cascades in Two-Dimensional Turbulence Forced at Large and Small Scales*. European Fluid Mechanics Conference 9, Rome, Italy (2012).
- Gyrotactic clustering in turbulent flows* workshop "Particles in Turbulence". The Lorentz Center, Leiden, The Netherlands (2012).
- Nonlinear Superposition of Direct and Inverse Cascades in Two-Dimensional Turbulence Forced at Large and Small Scales (invited)* Program "New directions in turbulence" Kavli Institute for Theoretical Physics China at the Chinese Academy of Sciences, Beijing, China (2012).
- Caustics and intermittency in turbulent suspensions of heavy particles (invited)* Mini-Symposium "Singularities in turbulent flows", Conference "Dynamics Days Europe 2011", Oldenburg, Germany (2011).
- Species-area relationships in spatially explicit neutral model*, Workshop "Niche theory and speciation", Keszthely, Hungary (2011).
- Intermittency in the velocity distribution of heavy particles in turbulence*, Conference "Particles in turbulence 2011", University of Potsdam, Potsdam, Germany (2011).
- Transport of tracers and particles in fluid flows (invited)* International Conference and School on "Anomalous Transport: from Billiards to Nanosystems", Sperlonga, Italy (2010).
- Dynamics of inertial particles and dynamical systems (invited)* International School on "Fluctuations and Turbulence in the Microphysics and Dynamics of Clouds" Porquerolles, France (2010).
- Heavy particles in turbulent flows, (invited)* International Workshop ORFLOW'10 "Living Organisms in Flows: From Small-scale Turbulence to Geophysical Flows", IFISC, Palma de Mallorca, Spain (2010).
- Relative velocity statistics of inertial particles*, Workshop "Particles in Turbulence" Nice, France (2009).
- Transport in chaotic and non-chaotic systems, (invited)* Workshop on "Pseudochaos and Stable-Chaos in Statistical Mechanics and Quantum Physics" ICTP, Trieste, Italy (2009).
- Dynamics and statistics of polydisperse suspensions of inertial particles, (invited)* Workshop on "Dynamics of inertial particles: from ocean and atmosphere to planets", Max-Planck institute for physics of complex systems, Dresden, Germany (2008).
- Active versus Passive scalar turbulence, (invited)* summer school on "Small-scale turbulence : Theory, Phenomenology and Applications", Institut d'Etudes Scientifiques de Cargèse, France (2007).
- Clusters and Voids of Inertial Particles Transported by Turbulence, (invited)* ICIAM07 "6th International Congress on Industrial and Applied Mathematics", Zurich (Switzerland) (2007).
- Inertial particles in turbulence: review of dns and open issues, (invited)* workshop "Stochastic models for turbulent suspensions of inertial particles", Observatoire de la Côté D'Azur, Nice, France (2006).
- Clustering of inertial particles*, workshop "Stirring and Mixing in Turbulence: the Lagrangian Approach", Lorentz Center, Leiden, The Netherlands (2006).
- Clustering of inertial particles in turbulent flows*, workshop "Non-equilibrium statistical mechanics and turbulence", Warwick University, Warwick, UK (2006).
- Acceleration statistics of heavy particles in turbulent flows, (invited)* European Geophysical Union (EGU06) General Assembly, Vienna, Austria (2006).
- Inertial Particles in High-Reynolds turbulent flows, (invited)* ESF workshop "Challenging Turbulent Lagrangian Dynamics", Castel Gandolfo, Rome Italy (2005).

- Nonlinearly driven synchronization in chaotic systems*, "X Convegno Nazionale di Meccanica Statistica". University of Parma, Italy (2005).
- Clustering and collision in suspensions of heavy particles*, (**invited**) workshop "Physics and Modeling of climate dynamics", Potsdam Institute for Climate Impact Research, Potsdam, Germany, (2005).
- Active versus Passive scalar turbulence*, X European Turbulence Conference (ETC10), Trondheim, Norway (2004).
- Active scalar transport: Is there universality in turbulent fields?*, (**invited**) Conference "Statistical Mechanics, Chaos and Condensed Matter Theory", University of Rome "La Sapienza", Italy (2004).
- On the Lagrangian meaning of dissipative anomaly in scalar turbulence*, (**invited**) conference "Statistical Mechanics and non perturbative Field Theory", University of Bari, Italy (2004).
- Active vs Passive scalar turbulence*, 297th WEH Seminar "Non-ideal turbulence" Physik-Zentrum, Bad Honnef, Germany (2003).
- Active vs Passive scalar turbulence*, (**invited**) workshop "Topics in nonlinear dynamics" Cic, Cuernavaca, Mexico (2002).
- Non Asymptotic Properties of Transport and Mixing*, Conference "Dynamics of Complex Systems", University of Alaska, Fairbanks, USA (2001).
- The Intermediate dissipative range of turbulence detected through the exit times statistics*, workshop "Intermittency in Turbulence". Institute for Scientific Interchanges, Turin, Italy (2000).
- The Finite Size Lyapunov Exponent: Scale-Dependent Description Dynamical Systems*, University of Postdam, Germany (2000).
- Exit-times of turbulent signals* VIII European Turbulence Conference (ETC8), Barcelona, Spain (2000).
- Non-Linear versus Linear disturbance propagation in spatially distributed systems*, Max-Planck-Institut für Physik komplexer Systeme, Dresden, Germany (2000).
- Introduzione alla Turbolenza*, (**invited**). Centro Interdisciplinare per lo Studio dei Sistemi Complessi (CISSC), Domus Galileiana, Pisa (1999).
- Macroscopic chaos in globally coupled maps* Max-Planck-Institut für Physik komplexer Systeme, Dresden, Germany (1998).
- Moti collettivi in sistemi caotici estesi*, (**invited**) III Convegno Nazionale di Meccanica Statistica. Università di Parma (1998).
- Transport and Dispersion in closed basins: beyond the diffusion coefficient*, workshop "Transport in Atmosphere and Oceans", Stockholm, Sweden (1997).

Publicazioni

Books (as author)

- [1] M. Cencini, F. Cecconi & A. Vulpiani, "*Chaos: From Simple Models to Complex Systems*", 480pgg. Collana: Series on Advances in Statistical Mechanics, Settembre 2009 (World Scientific Publishing Company, Singapore). ISBN: 978-981-4277-65-5 (Print) ISBN: 978-981-4467-49-0 (ebook)

Books (as editor)

- [2] "*Large Deviations in Physics: The Legacy of the Law of Large Numbers*", Editori: F. Cecconi, M. Cencini, A. Puglisi, D. Vergni, A. Vulpiani. 314pgg. Collana: Lecture Notes in Physics, Vol. 885, (Springer Heidelberg New York Dordrecht London). ISBN: 978-3-642-54250-3 (Print) 978-3-642-54251-0 (Online)

Peer Reviewed International Journals

- [3] L. Biferale, M. Cencini, D. Pierotti & A. Vulpiani, “*Intermittency in Stochastically Perturbed Turbulent Models*”, Journal of Statistical Physics **88**, 1117 (1997).
- [4] V. Artale, G. Boffetta, A. Celani, M. Cencini & A. Vulpiani, “*Dispersion of passive tracers in closed basins: Beyond the diffusion coefficient*”, Physics of Fluids **9**, 3162 (1997).
- [5] M. Cencini, M. Falcioni, D. Vergni & A. Vulpiani, “*Macroscopic chaos in globally coupled maps*”, Physica D **130**, 58 (1999).
- [6] M. Cencini, G. Lacorata, A. Vulpiani & E. Zambianchi, “*Mixing in a Meandering Jet: a Markovian Approximation*”, Journal of Physical Oceanography **29**, 2578 (1999).
- [7] P. Castiglione, M. Cencini, A. Vulpiani & E. Zambianchi, “*Transport in finite size systems: an exit time approach*”, Chaos **9**, 871 (1999).
- [8] L. Biferale, M. Cencini, D. Vergni & A. Vulpiani, “*Exit time of turbulent signals: a way to detect the intermediate dissipative range*”, Physical Review E: Rapid Communications **60**, 6295 (1999).
- [9] G. Boffetta, M. Cencini, S. Espa & G. Querzoli, “*Experimental evidence of chaotic advection in a convective flow*”, Europhysics Letters **48**, 629 (1999).
- [10] G. Boffetta, A. Celani, M. Cencini, G. Lacorata & A. Vulpiani, “*The predictability in systems with an uncertainty in the evolution equation*”, Journal of Physics A **33**, 1313 (2000).
- [11] G. Boffetta, A. Celani, M. Cencini, G. Lacorata & A. Vulpiani, “*Non Asymptotic Properties of Transport and Mixing*”, Chaos **10**, 50 (2000).
- [12] M. Abel, L. Biferale, M. Cencini, M. Falcioni, D. Vergni & A. Vulpiani, “*An exit time approach to (ϵ, τ) - entropy*”, Physical Review Letters **84**, 6002 (2000).
- [13] M. Cencini, M. Falcioni, E. Olbrich, H. Kantz & A. Vulpiani, “*Chaos or Noise — Difficulties of a distinction*”, Physical Review E **62**, 427 (2000).
- [14] M. Abel, L. Biferale, M. Cencini, M. Falcioni, D. Vergni & A. Vulpiani, “*Exit-Times and ϵ -Entropy for Dynamical Systems, Stochastic Processes, and Turbulence*”, Physica D **147**, 12 (2000).
- [15] A. Vulpiani, L. Biferale, G. Boffetta, A. Celani, M. Cencini & D. Vergni, “*On the exit-time approach for ϵ -entropy and turbulent signals*”, Physica A **280**, 49 (2000).
- [16] G. Boffetta, M. Cencini, S. Espa & G. Querzoli, “*Chaotic advection and relative dispersion in a convective flow*”, Physics of Fluids **12**, 3160 (2000).
- [17] M. Cencini & A. Torcini, “*Linear and nonlinear information flow in spatially extended systems*”, Physical Review E **63**, 056201 (2001).
- [18] L. Biferale, M. Cencini, A. Lanotte, D. Vergni & A. Vulpiani, “*Inverse statistics of smooth signals: the case of two dimensional turbulence*”, Physical Review Letters **87**, 124501 (2001).
- [19] G. Boffetta, M. Cencini, M. Falcioni & A. Vulpiani, “*Predictability: a way to characterize complexity*”, Physics Reports **356**, 367 (2002).
- [20] M. Abel, M. Cencini, D. Vergni & A. Vulpiani, “*Front speed enhancement in cellular flows*”, Chaos **12**, 481 (2002).
- [21] G. Boffetta, M. Cencini & J. Davoudi, “*Closure of two dimensional turbulence: the role of pressure gradients*”, Physical Review E **66**, 017301 (2002).
- [22] A. Celani, M. Cencini, A. Mazzino & M. Vergassola, “*Active vs passive scalar turbulence*”, Physical Review Letters **89**, 234502 (2002).
- [23] M. Cencini, A. Torcini, D. Vergni & A. Vulpiani, “*Thin front propagation in steady and unsteady flows*”, Physics of Fluids **15**, 679 (2003).
- [24] L. Biferale, M. Cencini, A. Lanotte & D. Vergni, “*Inverse velocity statistics in two dimensional turbulence*”, Physics of Fluids **15**, 1012 (2003).
- [25] L. Biferale, M. Cencini, A. Lanotte, M. Sbragaglia & F. Toschi, “*Anomalous scaling and universality in hydrodynamic systems with power-law forcing*”, New Journal of Physics **6**, 37 (2004).
- [26] A. Celani, M. Cencini & A. Noullez, “*Going forth and back in time: a fast and parsimonious algorithm for mixed initial/final-value problems*”, Physica D **195**, 283 (2004).

- [27] A. Celani, M. Cencini, A. Mazzino & M. Vergassola, “Active and passive fields face to face”, *New Journal of Physics* **6**, 72 (2004).
- [28] A. Celani, M. Cencini, M. Vergassola, D. Vincenzi & E. Villermaux “Shear effects in passive scalars spectra”, *Journal of Fluid Mechanics* **523**, 99 (2005).
- [29] F. Cecconi, M. Cencini, M. Falcioni & A. Vulpiani, “Brownian motion and diffusion: from stochastic processes to chaos and beyond”, *Chaos* **15**, 026102 (2005).
- [30] J. Bec, A. Celani, M. Cencini & S. Musacchio, “Clustering and collisions of heavy particles in random smooth flows”, *Physics of Fluids* **17**, 073301 (2005).
- [31] M. Cencini & A. Torcini, “Nonlinearly driven transverse synchronization in coupled chaotic systems”, *Physica D* **208**, 191 (2005).
- [32] S. Berti, G. Boffetta, M. Cencini & A. Vulpiani, “Turbulence and coarsening in active and passive binary mixtures”, *Physical Review Letters* **95**, 224501 (2005).
- [33] M. Chinappi, M. Cencini & A. Vulpiani, “Thin front propagation in random shear flows”, *Physical Review E* **73**, 016308 (2006).
- [34] J. Bec, L. Biferale, G. Boffetta, A. Celani, M. Cencini, A. Lanotte, S. Musacchio & F. Toschi, “Acceleration statistics of heavy particles in turbulence”, *Journal of Fluid Mechanics* **550**, 349 (2006).
- [35] M. Cencini, J. Bec, L. Biferale, G. Boffetta, A. Celani, A. Lanotte, S. Musacchio & F. Toschi, “Dynamics and statistics of heavy particles in turbulent flows”, *Journal of Turbulence* **7**, 36 (2006).
- [36] M. Cencini, A. Mazzino, S. Musacchio & A. Vulpiani, “Large-scale effects on meso-scale modeling for scalar transport”, *Physica D* **220**, 146 (2006).
- [37] J. Bec, L. Biferale, M. Cencini, A. Lanotte & F. Toschi, “On the effects of vortex trapping on the velocity statistics of tracers and heavy particle in turbulent flows”, *Physics of Fluids* (Letter to the Editor) **18**, 081702 (2006).
- [38] J. Bec, L. Biferale, G. Boffetta, M. Cencini, A. Lanotte, S. Musacchio & F. Toschi, “Lyapunov exponents of heavy particle in turbulence”, *Physics of Fluids* (Letter to the Editor) **18**, 091702 (2006).
- [39] C. Tessone, M. Cencini & A. Torcini, “Synchronization of extended chaotic systems with long-range interactions: an analogy to Levy-flight spreading of epidemics”, *Physical Review Letters*, **97**, 224101 (2006).
- [40] J. Bec, M. Cencini & R. Hillerbrand, “Heavy particles in incompressible flows: the large Stokes number asymptotics” *Physica D* **226**, 11 (2007).
- [41] J. Bec, M. Cencini & R. Hillerbrand, “Clustering of heavy particles in random self-similar flow”, *Physical Review E* (Rapid Communication) **75**, 025301 (2007).
- [42] J. Bec, L. Biferale, M. Cencini, A. Lanotte, S. Musacchio & F. Toschi, “Heavy particle concentration in turbulence at dissipative and inertial scales”, *Physical Review Letters* **98**, 084502 (2007).
- [43] M. Cencini, D. Diacono & G. Gonnella, “Hydrodynamics and growth laws in lamellar ordering” , *Europhysics Letters* **79**, 26004 (2007).
- [44] M. Cencini, L. Palatella, S. Pigolotti & A. Vulpiani, “Macroscopic equations for the adiabatic piston”, *Physical Review E* **76**, 051103 (2007).
- [45] F. Cecconi, M. Cencini & A. Vulpiani, “Transport properties in chaotic and non-chaotic many particle systems”, *Journal of Statistical Mechanics*, P12001 (2007)
- [46] L. Biferale, E. Bodenschatz, M. Cencini, A.S. Lanotte, N.T. Ouellette, F. Toschi & H. Xu, “Lagrangian Structure Functions in Turbulence: A Quantitative Comparison between Experiment and Direct Numerical Simulation”, *Physics of Fluids* **20**, 065103 (2008)
- [47] J. Bec, M. Cencini, R. Hillerbrand & K. Turitsyn, “Stochastic suspensions of heavy particles”, *Physica D* **237**, 2037 (2008)

- [48] A. Arneodo, R. Benzi, J. Berg, L. Biferale, E. Bodenschatz, A. Busse, E. Calzavarini, B. Castaing, M. Cencini, L. Chevillard, R. Fisher, R. Grauer, H. Homann, D. Lamb, A.S. Lanotte, E. Leveque, B. Luethi, J. Mann, N. Mordant, W.-C. Mueller, S. Ott, N.T. Ouellette, J.-F. Pinton, S. B. Pope, S.G. Roux, F. Toschi, H. Xu, P.K. Yeung “*Universal intermittent properties of particle trajectories in highly turbulent flows*”, *Physical Review Letters* **100**, 254504 (2008).
- [49] E. Calzavarini, M. Cencini, D. Lohse & F. Toschi “*Quantifying turbulence induced segregation of inertial particles*”, *Physical Review Letters* **101**, 084504 (2008).
- [50] M. Cencini, C.J. Tessone & A. Torcini “*Chaotic synchronizations of spatially extended systems as non-equilibrium phase transitions*”, *Chaos* **18**, 037125 (2008)
- [51] S. Pigolotti & M. Cencini “*Speciation-rate dependence in species-area relationships*”, *Journal of Theoretical Biology* **260**, 83 (2009)
- [52] F. Ginelli, M. Cencini & A. Torcini, “*Synchronization of spatio-temporal chaos as an absorbing phase transition: a study in 2+1 dimensions*”, *Journal of Statistical Mechanics: Th.and Exp P12018*, (2009)
- [53] J. Bec, L. Biferale, M. Cencini, A.S. Lanotte & F. Toschi “*Intermittency in the velocity distribution of heavy particles in turbulence*”, *Journal of Fluid Mechanics*, **646**, 527 (2010)
- [54] S. Pigolotti & M. Cencini, “*Coexistence and invasibility in a two-species competition model with habitat-preference*”, *Journal of Theoretical Biology* **265**, 609 (2010)
- [55] M. Cencini, P. Muratore-Ginanneschi & A. Vulpiani “*Nonlinear Superposition of Direct and Inverse Cascades in Two-Dimensional Turbulence Forced at Large and Small Scales*”, *Physical Review Letters*, **107**, 174502 (2011)
- [56] D. Vergni, S. Iannaccone, S. Berti & M. Cencini “*Invasions in heterogeneous habitats in the presence of advection*”, *Journal of Theoretical Biology*, **301**, 141 (2012)
- [57] M. Cencini, M. A. Muñoz & S. Pigolotti “*What ecological factors shape species-area curves in neutral models?*”, *PLoS ONE* **7**(6): e38232 (2012).
- [58] F. Cecconi, M. Cencini, M. Falcioni & A. Vulpiani, “*The prediction of future from the past: an old problem from a modern perspective*”, *American Journal of Physics* **80**, 1001 (2012)
- [59] M. Cencini & A. Vulpiani, “*Finite Size Lyapunov Exponent: review on applications*”, *Journal of Physics A: Mathematical and Theoretical* **46**, 254019 (2013)
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