CURRICULUM VITAE

August 2019

Stefano Zapperi
Full Professor of Theoretical Condensed Matter Physics,
Coordinator of the Center for Complexity & Biosystems,
University of Milano, Italy

Born in Rome
30 01 1970

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Narrative bio-sketch:

Stefano Zapperi is currently professor of theoretical condensed matter physics at the University of Milano and coordinator of the Center for Complexity and Biosystems. He graduated in physics at the University of Rome "La Sapienza" and received his Ph. D. in physics from Boston University. After a postdoctoral position at ESPCI in Paris, he became tenured researcher at INFM at the University Rome and then at the University Modena and Reggio Emilia. He became then senior researcher at CNR-IENI in Milano. He has been invited as visiting scientist or visiting professor in many institutions worldwide, including Cornell University, Aalto University, ENS, Boston College, Rice University and the Weizmann Institute of Science. Prof. Zapperi in an expert in the statistical physics of complex systems and has contributed to the fields of materials science, biophysics and systems biology. His most notable contributions include the theory of the Barkhausen noise in magnets, the statistical physics of plasticity and fracture, and recent work on the physics of cancer and protein aggregation. He published more than 200 scientific papers in the top scientific journals, including 4 in Nature, 3 in Science, 4 in PNAS and 32 in Phys. Rev. Lett. gathering more than 9000 citations (scholar). In 2017, he co-authored with Caterina La Porta a book on the Physics of Cancer. Prof. Zapperi is the recipient of numerous awards including the Marie Curie Excellence Award, the Humboldt Research Awards, the Advanced Grant from the European Research Council. He was elected fellow of the American Physical Society and named Finland Distinguished Professor by the Academy of Finland. He is member of the editorial boards of JSTAT and Physical Biology. He organized several international workshops, summer schools and symposia on a variety of interdisciplinary research topics, ranging from the "Physics of Cancer" to Statistical Physics of Materials and Complex Systems. He has been elected member of the council and the executive committee of the Complex Systems Society and acted as chair of the steering committee of the Conference on Complex Systems.

Academic degrees:

1998	Ph. D. in Physics, Boston University
1994	Laurea in Physics, University of Rome "La Sapienza", Italy

Professional positions:

2015-present	Full Professor of Theoretical Physics of Matter, University of Milano, Italy
2010-2015	Senior Researcher (tenured) CNR-IENI, Milano, Italy
2008-2009	Researcher (tenured) CNR- INFM, S3, Univ. Modena Reggio Emilia, Italy
2000-2007	Researcher (tenured) INFM, SMC, Univ. Roma "La Sapienza", Italy
1998-1999	Postdoctoral fellow, ESPCI, Paris, France.
1995-1997	Research assistant, Boston University, USA

1994-1995	Teaching fellow, Boston University, USA

Other appointments:

2015-present	Coordinator, Center for Complexity & Biosystems, University of Milano, Italy
2012-2017	Research leader, ISI Foundation, Torino, Italy
2007-2011	Associate research scientist, ISI Foundation, Torino, Italy

Awards and honors:

2018	Humboldt Research Award, The Alexander von Humboldt Foundation
2015	Fellow of the American Physical Society
2015-2020	Elected member of the Council, Complex Systems Society
2015-2018	Elected member of the Executive Committee, Complex Systems Society
2015-2018	Chairman of the Steering Committee, Conference on Complex Systems
2014-2018	Finland Distinguished Professor, Academy of Finland
2004	Marie Curie Excellence Award, EU (personal award of 50000€).
1997	Materials Research Society, Graduate Student Award
1995	Boston University, Goldhaber Prize

Visiting positions:

04/2017	Visiting researcher, CNRS, ENS Lyon, France
08/2015	Visiting Scientist, Cornell University, USA
07/2014	Visiting professor, UPMC, Paris, France
07/2013	Visiting professor, Aalto University, Finland
08/2013	Visiting scientist, Cornell University, USA
07-08/2011	Visiting scientist, Cornell University, USA
07-08/2010	Visiting scientist, Cornell University, USA
07/2009	Visiting scientist, Cornell University, USA
06-08/2008	Visiting scientist, Harvard University, USA
06-08/2007	Visiting scholar, Boston College, USA
09/2006	Visiting professor, Helsinki University of Technology, Finland
10/2005	Visiting fellow, KITP, University of California Santa Barbara, USA
02/2002, 12/1999	Visiting professor, UFC, Fortaleza, Brazil

Funding and grants:

Research grants:

2018-2020	PI: Italian-Israel cooperation grant (MAECI), DISORDER, with I. Procaccia, the Weizmann Institute of Science (100,000€)
2012-2018	PI: European Research Council (ERC) Advanced Grant 2011, "Size effects in fracture and plasticity" (grant of 2,500,000€ for 5 years).
2013-2014	PI: CNR Flagship project, La Fabbrica del Futuro, "Surface Nano-structured Coating for Improved Performance of Axial Piston Pumps SNAPP" (50,000€)
2014	PI: CNR Flagship project,, La Fabbrica del Futuro, "Customized Heat exchanger with Improved Nano-coated surface for earth moving machines Applications (CHINA) (26,500€)
2013-2016	Co-PI: Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad (MWN), NSF-CNR 09/2013-08/2016, with J. P. Sethna (Cornell), Materials World Network: Crackling noise (180,000€).
2011-2012	Coordinator: ERANET-Complexity pilot project, LOCAT "Localizing signatures of catastrophic failures", with 3 EU partners, total grant of 500,000€.
2010-2011	PI of the italian PRIN 2008 project "Tribology of nanoclusters", 64,000€.
2007-2009	Coordinator of STREP in the EU NEST Pathfinder initiative, TRIGS "Triggering of instabilities in materials and geosystems", with six EU partner, total grant of 1,700,000€.
2000-2002	PI: PAIS project, INFM, "Hysteresis in disordered ferromagnets" 38,000€

Organization grants:

2012 Grant from CECAM (Centre Européen de Calcul Atomique et Moléculaire) for the workshop on Computational Physics Methods for Cancer, Lausanne, Switzerland June 27-29, 2012 (with C. La Porta) (14400 CHF).

2012 Grant for European Science Foundation: Exploratory Workshop 2012: Physics of cancer Varenna 13-15 September 2012 (29 founded project on 250) (with C. La Porta) (14000€).

2006 Grant for ESF- Exploratory Workshop 2006: "Crackling noise", 14000€.

2002 Grant from ESF network SPHYNX for the workshop on "Depinning transition" 22000€

2001 Grant from VolkswagenStiftung for the workshop on "Statistical mechanics of plasticity" 20000€

Technology transfer

2019-2020 Proof-of Concept grant, METADESIGN, from the Eurupean Research Council (150,000€)

2018-present Co-founder and member of the governing board of the startup "Complexdata S.R.L". Complexdata was the winner of the G-Factor competition from Fondazione Golinelli, winner of the Startup 4.0 prize and finalist in other business competitions.

2017 Research contract from Samsung Design Europe on "Auxetic metamaterials" (25,000€)

Professional activities:

2016-present Member of the editorial board of Physical Biology

2003-present Member of the editorial board of Journal of Statistical Mechanics (JSTAT).

2013-present Member of the Complex Systems Society,

1994-1997, 2008-present Member of the American Physical Society (USA).

2007 Guest Editor European Physics Journal B, for the proceeding of Statphys 23,

1994-1998 Member of the Materials Research Society (USA).

Referee for grant proposals for ANR (France), INSERM (France), NSF (USA), Hungarian Academy of Science (Hungary), Alberta Ingenuity Funds (Canada), Swiss Nat. Sci. Found. (CH), European Science Foundation, European Research Council.

Conference organization:

Organization:

2019 Director of the Third Summer School on "Advances in Complex Systems: from ecology to economics", Lake Como School of Advanced Studies, Como Italy, July 22-26 2019 (with J. P. Bouchaud and C. La Porta).

2018 Organizer of the workshop: "Physicists working on cancer" Weizmann Institute of Science July 1-12 2018, Rehovot, Israel 2017 (with E. Domany, H. Levine and C. La Porta).

2017 Director of the Second Summer School on "Advances in Complex Systems", Lake Como School of Advanced Studies, Como Italy, July 3-7 2017, (with M. J. Alava, C. La Porta and A. Vespignani)

2015 Director of the Summer School on "Advances in Complex Systems", Lake Como School of Advanced Studies, Como Italy, June 29, July 3 2015, (with M. J. Alava, C. La Porta and A. Vespignani)

2012 Organizer of the European Science Foundation: Exploratory Workshop 2012: Physics of cancer, Varenna 13-15 September 2012 (with C. A, M. La Porta)

2012 Organizer of the CECAM (Centre Européen de Calcul Atomique et Moléculaire) workshop: Computational Physics Methods for Cancer, Lausanne, Switzerland June 27-29, 2012 (with C. A. M. La Porta)

2008 Organizer of the Symposium on "Statistical methods for materials deformation and failure", in "Multiscale Material Modeling 2008", Talahassee, USA, 27-31 October 2008 (with M. J. Alava, I.

Groma, M.-C. Miguel).

2007 STATPHYS 23, Genova, July 2007 (Conference Secretary)

2006 Organizer of the Symposium on "Statistical approaches to irreversible deformation and failure of materials", in "Multiscale Material Modeling 2006", Freiburg, D, 18-22 September 2006 (with M. J. Alava, H. J. Herrmann, M. Zaiser).

2006 Organizer of the ESF Exploratory Workshop on "Crackling Noise", IEN, Torino 24-27 May 2006 (with G. Durin).

2004 Organizer of the Workshop on "Depinning transitions in disordered media: theory and applications", Nordita, Copenhagen DK, 22-24 April 2004 (with M. J. Alava).

2002 Director of the Research Workshop on "Statistical Mechanics of Plastic Deformation", ICTP, Trieste 4-7 march 2002 (with E. Aifantis, A. El Azab, P. Haener, H. Neuhauser, A. Vespignani).

2002 Organizer of the Workshop on Statistical aspects of hysteresis, Roma, 4-6 April 2002 (with G. Durin).

Membership in scientific advisory committees:

2019 Italian Conference on Complex Systems, (1-3 7 2019, Trento Italy).

2015 Conference on Unsolved Problems On Noise - UPON 2015 (2015, Barcelona)

2014 Program on "Avalanches, intermittency, and nonlinear response in far-from-equilibrium solids" at KITP (2014, Santa Barbara, USA)

2012 Conference on Unsolved Problems On Noise - UPON 2012 (2012, Calcutta, India)
Conference on Unsolved Problems On Noise - UPON 2008 (2008, Lyon. France)

2005 ICSMPR (2005, Bangalore, India).

2004 XIX Sitges Conference on Statistical Mechanics (2004, Sitges, Spain)

Selected invited talks and lectures:

Selected invited talks at international conferences:

1. Earthflow workshop on "Complexity in Solid Earth and Geophysical Flows", Oslo 19-20 June 2019, opening keynote "Atomic scale frictional fronts".
2. CECAM Workshop "Emergence of surface and interface structure from friction, fracture and deformation", Lausanne – CH 24-27 July 2018 "Atomic-Scale Front Propagation at the Onset of Frictional Sliding"
3. 9th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems, 21-23 March 2018 "How glasses break".
4. Workshop on Physicists working on Cancer, Weizmann Institute of Science, Rehovot, Israel, 1-12 July 2018. "Tackling phenotypic plasticity in Cancer" (with C. La Porta)
5. Second International Conference on exaptation and inverse question-driven innovation, 26-28 April 2018 Palazzo Feltrinelli, Lake Garda, Italy. "Exaptation for the good and the bad: regeneration and cancer" (with C. La Porta)
6. The 20th European Conference on Mathematics for industry, Budapest, Hungary 18-22 June 2018 "Integrative analysis of pathway deregulation in obesity".
7. CECAM-Node workshop on Phase Transformations and Plasticity in Crystals: Atomistic to Continuum Models", Milano 3-4 September 2018. "Excitation spectra in crystal plasticity."
8. Cell Physics 2017, Saarbrucken, Germany 11-13 October 2017. "Tackling cell deformation, division and migration by a combination of experiments and computational models" (with C. La Porta)
9. 4th Mini-Symposium on Bioimage Informatics, Rennes, France, 27 June 2017. "Bursts of activity in collective cell migration"
10. Congresso Nazionale SIF, Trento 13 September 2017, "Bursts of activity in collective cell migration"
11. Multiscale Materials Modeling October 9-14 2016, Dijon, France, Plenary talk "Size effects in fracture and plasticity"
12. Statphys 26, Lyon, July 18-22 2016. Invited talk "Size effects in fracture and plasticity"
13. Summer School on Advanced in Complex Systems, Lake Como School of Advanced Studies, Como Italy, June 29-July 3 2015. Talk on "Size effects in fracture".

14. Workshop on Statistical Mechanics of forms and shapes" 27—30 May 2015, Mariehamn, Åland. Talk on "Deformation and fracture of graphene"
15. COMP Full Day seminar, Espoo, Finland, 24 February 2015, Plenary talk "Tackling fluctuations in materials and biosystems"
16. CLINAM 2014 Basel, June 23-25 2014. Invited talk on "Population dynamics of cancer stem cells".
17. European Conference on Complex Systems, Barcelona, Spain 16-20 September 2013. Keynote Speaker "Crackling noise: the sound of complex systems".
18. SES 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting Providence, USA, July 28 - 31 2013, Keynote contribution to the symposium on Slip avalanches in amorphous plasticity.
19. DPG Spring Meeting, Regensburg, Germany 10-15 March 2013. Invited talk "Elasticity and disorder for fractuere size effects"
20. Aspen Center for Physics, workshop on Large Fluctuations and Collective Behavior in Solids, Aspen (USA) July 29-Aug 19 2012. "Size effect in fracture and plasticity".
21. American Physical Society, March meeting, Boston (USA) Feb. 27-March 2 2012, "Avalanches and Clusters in crack front propagation".
22. Keynote Lecture, Workshop on Rapid Mass Movements, Monte Verità, Ascona, CH, April 11-15 2010 "Triggering frictional slip"
23. Joint ICTP-FANAS Conference on Trends in Nanotribology, Trieste, Italy 19-24 10 2009. "Triggering frictional slip"
24. 22nd General Conference of the Condensed Matter Division of the European Physical Society, Roma, Italy 2008 "Dislocation Avalanches, Strain Bursts, and the Problem of Plastic Forming at the Micrometer Scale"
25. 8th Multimat Workshop, Roma, Italy 2008. "Dislocation Avalanches, Strain Bursts, and the Problem of Plastic Forming at the Micrometer Scale"
26. Conference on size effects and scaling in fracture, Monte Verità, Ascona, Switzerland 2008. "Role of disorder in the size scaling of material strength".
27. Workshop on Fluctuations and Scaling in Materials, Todi, Italy, 2007. "Role of disorder in the size scaling of materials strength"
28. Workshop on complex systems, Barcelona, Spain, 2007, "Vortex polycrystals in type II superconductors".
29. The 11th International Workshop on Vortex Matter, Wroclaw, Poland, 2006. "Vortex polycrystals in type II superconductors".
30. Workshop on Statistical Physics in Mechanics, Grasse, France, 2006. "Crack morphology in two dimensions"
31. Program on: From the Atomic to the Tectonic: Friction, Fracture and Earthquake Physics. KITP Santa Barbara, 2005. "Inertial Effects in Crackling Noise: From Magnets to Granular Media"
32. GDR: Systemes elastiques: du Desordre a la Plasticite, Vogue, France, 2005. "Grain boundaries in vortex matter".
33. ICF XIX, International conference on Fracture, Torino, March 2005. "Crack roughness and avalanche precursors in the random fuse model"
34. Ecole Thematique CNRS, Systemes complexes en Astrophysique : L'emergence de structures en milieux dilues. Chateau de Goutelas 2004. Series of lectures on "Self-organized criticality".
35. XIX SITGES CONFERENCE on Statistical Mechanics, Sitges, Spain 2004. "Jamming and depinning of interacting dislocations"
36. LAWNP 03, Salvador, Brasil, 2003 "Non-linear vortex diffusion and flux-front invasion in disordered type II superconductors"
37. Invited Lecture, Plasticity 03, Quebec, Canada, 2003. "Depinning of a dislocation pileup"
38. GDR: Systemes elastiques: du Desordre a la Plasticite, Carcassonne, France, 2002. "Collective dynamics of dislocations"
39. Workshop on Disordered systems at low temperatures and their topological properties, Helsinki, Finland 2002, "Collective dynamics of dislocations"
40. Horizons on complex systems, Messina, Italia, 2001, "Statistical models for acoustic emission"
41. JEMS'01 (Joint European Magnetic Symposia EMMA-MRM), Grenoble, France, 2001, "Microscopic foundations of the Rayleigh law of hysteresis"

42. EURESCO conference on Plasticity of Materials, Acquafredda di Maratea, Italy, 2000, "Complex dynamics of dislocation systems".
43. International Workshop on on Scaling in Disordered Systems, ESPCI, Paris, Francia, 2000, "Planar cracks in the fuse model"
44. Workshop on SOC and phase transitions, ICTP, Trieste, Italia, 2000, "Driving modes in avalanching systems"
45. Workshop on nonequilibrium dynamic systems, Porto, Portugal, 1999, "Driving and dissipation in avalanche transport phenomena"
46. VIII Workshop on computational material science, S. Margherita di Pula, Sardegna, 1998, "The Barkhausen eect: A new perspective for an old problem"
47. Conference on the Dynamics of Complexity, ICTP, Trieste, Italy, 1997, "Dynamics of a ferromagnetic domain wall and the Barkhausen effect".

International schools and Ph.D/M. D. programs

1. Summer School: From nonlinear Physics to Biology and Medicine, Cargèse, Corsica (France) 9-21 July 2012.
2. Joint Master on Computational and Applied Physics, Technical University of Catalonia (UPC)/University of Barcelona (UB), Spain.Lectures on “Elasticity and disorder”. Feb 16-19, 2010.
3. IGERT program, Cornell University, Lecture on “Dislocation avalanches” Nov. 17-20, 2009.
4. Ph. D. school in Physics, Helsinki University of Technology, Finland, Lectures on “Depinning Transition”, 2006.
5. Summer school CNRS, Complex systems in Astrophysics, Chateau de Goutelas, France. Lectures on "Self-organized criticality". Sep. 23-26, 2004
6. Ph. D. school in Physics, Federal University of Cearà, Brasil. Lectures on “Hysteresis”. Feb 15-28, 2002.

Seminars in Universities

During my career I was invited to give lectures, seminars and colloquia at a large number of institutions including (in the last 10 years): Aalto University, Boston College, Cornell University, ETH Zurich, Harvard University, Leiden University, North Carolina State University, Northeastern University, SISSA Trieste, Politecnico di Milano, University of Barcelona, University of Luxembourg, University North Carolina, University of Parma, University of Rome, University of Edinburgh, University of Montpellier, University of Syracuse, Weizmann Institute of Science.

Teaching and services:

Courses and teaching activities:

- Master course on “Advanced Biophysics”, Università degli Studi di Milano 2019
- Master course on “Physics of Proteins”, Università degli Studi di Milano 2016-2018
- Batchelor course on “Introduction to Statistical Physics”, Università degli Studi di Milano 2016-2019
- Batchelor course on “Mathematical methods for physics”, Università degli Studi di Milano 2015
- Master course on “Statistical Mechanics”, Università degli Studi di Milano 2015/16
- Master course on “Biophysics”, Università degli Studi di Milano, 2014-2019
- Training course on “Statistical data analysis”, Università di Modena e Reggio Emilia, 2008
- Graduate course on “Statistical mechanics”, Università di Modena e Reggio Emilia, 2008
- Graduate course on “Physics of complex materials”, Univ. Roma “La Sapienza” 2006
- Graduate course on “Theory of Elasticity”, Univ. Roma “La Sapienza”, 2003
- Graduate course on “Theory of Elasticity”, Univ. Roma “La Sapienza”, 2002
- Grader, Statistical Mechanics, Boston University 1997
- Teaching fellow, Modern physics (1 semester), Environmental physics (1 semester), Boston University 1994-1995

Member of Habilitation committee:

- Paolo Moretti, FAU Erlangen-Nurenberg, Germany 2016
- Carlo Bianca, Ecole Normale Superieure, Paris, France 2015
- Stephane Santucci, Ecole Normale Superieure, Lyon, France 2014

External member in Ph.d thesis committees :

- F. P. Landes (Université Paris-Sud, 2014)
- A. Dobrinevski (Ecole Normale Superieure, Paris, France, 2013)
- G. Mourot (Université de Bordeaux, France, 2007)
- P. Moretti (University of Edinburgh, UK, 2006),
- F. Lahaie (Université de Grenoble, France, 2000),
- A. Alencar (UFC, Fortaleza, Brazil, 1999).

Supervision of students and postdocs:

- Advisor of "Laurea triennale" (Batchelor) students:
  - E. Distante (2007); Univ. Milano
  - M. Vodret (2016); Univ. Milano
  - B. Raciti (2019); Univ. Milano
- Advisor of "Laurea" (Master) students:
  - P. Moretti (2003); Univ. Roma "La Sapienza"
  - M. Minozzi (2001); Univ. Roma "La Sapienza"
  - L. Dante (2001); Univ. Roma "La Sapienza"
  - M. Baraldi (2012); Univ. Milano.
  - G. Fatti (2016); Univ. Milano
  - M. Hoferer (2017) LMU Munich/Univ. Milano
  - B. Spelta (2019); Univ. Milano
- Advisor of Ph. D. students:
  - L. Ravazzano (2018-2020) Univ. Milano
  - C. Manzato (2008-2010); Univ. Modena e Reggio Emilia. Presently postdoctoral fellow Aalto University (Finland)
  - F. Leoni (2006-2008); Univ. Roma "La Sapienza", Presently postdoctoral fellow, Tel Aviv University.
  - B. Cerruti (2003-2006); Univ. Roma "La Sapienza" , Presently research associate at Institute for Cancer Research and Treatment, Torino (Italy)
- Supervision of postdoctoral fellows:
  - S. Bonfanti (2016-present) University of Milano
  - F. Font-Clos (2015-present) University of Milano
  - C. Pedersen (2015-2017) Aalto University, presently postdoc at University of Innsbruck
  - O. Chepizhko (2015-2017) Aalto University, presently postdoc at University of Innsbruck
  - P. Jana (2015-2017) Aalto University, presently postdoc at Université Libre de Bruxelles.
  - A. L. Sellerio (2013-2016) Univ. Milano.
  - C. Negri (2013-2016) Univ. Milano. Presently tenured researcher at UniResearch Bergen, Norway
  - G. Costantini (2012-2017) Univ. Milano.
  - Z. Budrikis (2012-2017) ISI, Torino. Presently editor at Nature.
  - A. Taloni (2011-2016) Univ. Milano. Presently tenured researcher at CNR, Roma.
  - Z. Bertalan (2012-2015) ISI, Torino, presently developer at Medizinkraft, Vienna.
  - U. Salman (2013-2014) CNR, Milano, presently researcher at CNRS, Paris.
  - D. Vilone (2012-2013) CNR, Milano, Presently postdoctoral fellow, CNR Roma.
  - A. Benassi (2011-2012) CNR, Milano. Presently research associate, TU Dresden.
  - L. Laurson (2009-2010);ISI, Torino. Academy fellow, Aalto University.
  - A. Mughal (2008-2009); ISI, Torino. Presently tenured lecturer Aberystwyth University(UK).
  - R. Capozza (2008-2009); CNR-INFM, Modena. Presently postdoctoral fellow at SISSA

- V. Beato (2006-2009); CNR-INFM, Roma. Presently employed at Deep Blue consulting and research (Italy).
- A. Baldassarri (2003-2004); INFM, Roma. Presently tenured researcher at CNR-ISC, Roma (Italy).
- F. Colaiori (2002-2003); INFM Roma. Presently tenured researcher at CNR-ISC Roma, (Italy).

PUBLICATIONS

More than 150 publications in major peer reviewed international scientific journals and conference proceedings. Among those: 3 articles in Science, 4 articles in Nature, 3 in Nature Physics, 1 article in Nature Materials, 1 Nature Communications, 3 articles in the Proceedings of the National Academy of Sciences USA, review articles in Advances in Physics, Nature Reviews Materials and Reviews of Modern Physics, 32 papers in Physical Review Letters, 5 books chapters and 1 book.

Impact and media coverage:

Impact of the publications

My publications have received more than 6000 citations in total (ISI h-index=37, google scholar h-index=45). My work was featured in several science and popular science books including an epistemological essay (R. Frigg, Stud. Hist. Philos. Sci. 34A, 613, 2003).

Media coverage and perspectives:

My work was often covered by the media, I have been often interviewed by Italian newspapers, radio and television.

Publications on the Italian research system and outreach activities:

I have contributed to the debate on the Italian research and university system with a series of publications in newspaper and magazines and with a book (F. Sylos Labini, S. Zapperi “I ricercatori non crescono sugli alberi”, Laterza 2011). I routinely participate in outreach activities to disseminate science and research problems to the public at large. Examples include participation to the Genova Science Festival (in 2005), participation to European Researchers Night (in 2010 and 2011) and contributions to online science magazines (scienzainrete).

Complete list of Publications

Books:

1. C. A. M. La Porta and S. Zapperi, The Physics of Cancer, Cambridge University Press (2017).

Book chapters:

1. S. Zapperi, C, A. M. La Porta Cancer Stem Cells Biomarkers Chapter 15 pag.305-316 in: Principles of Stem Cell Biology and Cancer: Future Applications and Therapeutics, By Tarik Regad, Thomas Sayers, Robert Rees , John Wiley & Sons, Ltd 2015.
2. S. Zapperi, C.A.M. La Porta Cancer stem cells in melanoma:biomarkers and mathematical models Chapter 10, pp 133-142, Cancer Stem Cells, edited by V.K. Rajasekhar (Wiley Press, 2013).
3. G. Durin and S. Zapperi, “The Barkhausen effect" in The Science of Hysteresis", edited by G. Bertotti and I. Mayergoyz, vol. II pp 181-267 (Academic Press, Amsterdam, 2006).
4. S. Zapperi, M. C. Miguel, P. Moretti and M. Zaiser, ``Jamming and Yielding of Dislocations': from Crystal

Plasticity to Superconducting Vortex Flow'' in ``Jamming, Yielding and Irreversible Deformation in Condensed Matter'', M. C. Miguel and M. Rubi (eds), Lect. Notes in Physics 688, 189 (Springer, Heidelberg-Berlin, 2006)

5. A. Baldassarri, F. Dalton, A. Petri, L. Pietronero, G. Pontuale and S. Zapperi "Granular shearing and Barkhausen noise", in "Traffic and Granular Flow'05", 91 (Springer, Heidelberg-Berlin, 2007)

Edited volumes:

1. C. A. M. La Porta and S. Zapperi, Cell migrations: causes and functions (Springer-Nature, 2019).
2. V. Loreto, L. Pietronero and S. Zapperi, Topical issue dedicated to Statphys 23, Eur. Phys. J. B 64, 301- 636 (2009).

Review articles:

1. A. Taloni, M. Vodret, G. Costantini and S. Zapperi. Size effects on the fracture of microscale and nanoscale materials, Nat. Rev. Materials 3, 211 (2018).
2. C. A. M. La Porta and S.Zapperi. Explaining the dynamics of tumor aggressiveness: At the crossroads between biology, artificial intelligence and complex systems Seminars in Cancer Biology 2018 July 11.
3. James P Sethna, Matthew K Bierbaum, Karin A Dahmen, Carl P Goodrich, Julia R Greer, Lorien X Hayden, Jaron P Kent-Dobias, Edward D Lee, Danilo B Liarte, Xiaoyue Ni, Katherine N Quinn, Archishman Raju, D Zeb Rocklin, Ashivni Shekhawat, Stefano Zapperi, "Deformation of crystals: Connections with statistical physics" Annual Review of Materials Research 47, 2017 (2017).
4. C. A. M. La Porta and S. Zapperi, Complexity in cancer stem cells and tumor evolution: towards precision medicine, Seminars in Cancer published online (2017).
5. A. Taloni, M. Ben Amar, S. Zapperi and C. A.M. La Porta, The role of pressure in cancer growth EPJ Plus, 130 224 (2015)
6. A. Vanossi, N. Manini, M. Urbakh, S. Zapperi, and E. Tosatti, "Modeling friction: from nano to meso scales", Rev. Mod. Phys. 85, 529–552 (2013)
7. S. Zapperi. "Current challenges for statistical physics in fracture and plasticity", Eur. Phys. J. B 85 329 (2012).
8. C.A.M. La Porta, S. Zapperi Human breast and melanoma cancer stem cells biomarkers, Cancer Letters 338, 69–73. (2013)
9. M. J. Alava, P. K. V. V. Nukala and S. Zapperi, "Size effects in statistical fracture" J. Phys. D 42, 214012 (2009).
10. M. J. Alava, P. K. V. V. Nukala and S. Zapperi, "Statistical models for fracture", Adv. Phys. 55, 349-476 (2006).
11. M. C. Miguel, J. S. Andrade Jr. and S. Zapperi, ``Deblocking of Interacting Particle Assemblies: from Pinning to Jamming'', Braz. J. Phys. 33, 557 (2003).
12. R. Dickman, M. A. Munoz, A. Vespignani and S. Zapperi, ``Paths to Self-organized criticality'' Braz. J. Phys. 30, 27 (2000)

Editorial material:,

13. C.A.M. La Porta and S. Zapperi, "Biophysical processes in fibrosis", Physics of Life Reviews, 17 103 (2016).
14. S. Zapperi, "Looking at how things slip", Science 330, 184 (2010).
15. M.-C. Miguel and S. Zapperi, "Fluctuations in plasticity at the microscale", Science 312, 1151 (2006).
16. F. Sylos Labini and S. Zapperi, "Reverse age discrimination", Nature Physics 3, 582 (2007).

Journal papers:

Soft matter:

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