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Personal:

German-Turkish dual citizen, born April 16 1967 in Ankara, Turkey. Languages: Turkish (fluent/native), German (fluent/native), English (fluent), Spanish (level B1), French (level A1.1).

Education:

Habilitation	Title <i>Doçentlik</i> awarded by the Turkish Council of Higher Education YÖK (June 2007) upon evaluation and oral examination by scientific jury.
Ph.D	The University of Chicago, Physics (December 1998). Dissertation title: Static and Dynamical Properties of Elastic Manifolds in Random Media. Advisor: Professor Dr. Susan N. Coppersmith.
M. S.	Boğaziçi University, System and Control Engineering (August 1991). Thesis: Canonical Representations of LTI Systems under State and Input Space Isomorphisms. Advisor: Professor Dr. Kadri Özçaldıran.
B. S.	Boğaziçi University, Physics (June 1989).

Positions Held:

2023 -	Guest Professor, U. of Cologne, Institute of Biol. Phys.
2023 - 2025	Senior Research Scientist, U. of Cologne, Institute of Biol. Phys.
2022 - 2023	PI, DFG-funded project, U. of Cologne, Institute of Biol. Phys.
2018 - 2022	PI, DFG-funded project, Bonn University, Institute of Applied Math.
2016 - 2022	Guest Professor, Bonn University, Institute of Applied Mathematics.
2013 - 2017	Full Professor of Physics (tenured), Boğaziçi University, Turkey.
2011 - 2012	Research Consultancy, MEVICO EU FP7 Project, Ericsson Turkey.
2010 - 2011	Visiting Professor, Math. Dpt. U. California, Berkeley, USA.
2007 - 2013	Associate Professor of Physics (tenured), Boğaziçi University, Turkey.
2005 - 2010	Joint Appointment as Senior Researcher, Feza Gürsey Institute, Turkey.
2002 - 2007	Assistant Professor of Physics, Boğaziçi University, Turkey.
2000 - 2002	Director of Consulting, OpenMake Software, USA.
1998 - 2000	Senior Consultant, OpenMake Software, USA.

1991 - 1998	Teaching/Research Assistant, University of Chicago, Physics Department.
1989 - 1991	Teaching Assistant, Boğaziçi University, Physics Department.

Honors and Awards:

2024	Ranked first in French CNRS competition for Directeur du Recherche in Section 5, Condensed Matter Physics (among 50 internal and external candidates).
2024	Visiting Fellowship (Chaire Joliot), PMMH Laboratory at ESPCI CNRS, Paris.
2021 - 2023	Fully funded PI position via Extension of DFG-Project No. 398962893, <i>Metastable transitions in time-dependent driven disordered systems: From deformable structures in random media to adaptive walks in random fitness landscapes</i> , 197,500 Euros.
2020 - 2021	Fully funded PI position via Extension of DFG-Project No. 398962893, <i>Metastable transitions in time-dependent driven disordered systems: From deformable structures in random media to adaptive walks in random fitness landscapes</i> , 95,450 Euros, University of Bonn, Institute of Applied Mathematics.
2020 - 2022	Visiting Fellowship (Chaire Joliot), PMMH Laboratory at ESPCI CNRS, Paris.
2018 - 2020	Fully funded principal investigator position “eigene Stelle” via DFG-Project No. 398962893, <i>Metastable transitions in time-dependent driven disordered systems: From deformable structures in random media to adaptive walks in random fitness landscapes</i> , 180,100 Euros, University of Bonn, Institute of Applied Mathematics.
2018 - 2022	Member, Collaborative Research Center 1060, <i>The Mathematics of Emergent Effects</i> , University of Bonn, Institute of Applied Mathematics.
2019 - 2022	Associate member, Hausdorff Center for Mathematics, University of Bonn.
2018	Invited participant of the program <i>Entropy, Information and Order in Soft Matter</i> , ICTS, Bengaluru, India (fully funded stay, October).
2018	Invited participant of the program <i>Memory Formation in Matter</i> , Kavli Institute of Theoretical Physics, U. California, Santa Barbara (fully funded 2 month stay, January - February).
2008	Recipient of the Sedat Simavi Prize in Natural Sciences for paper <i>String Matching and 1d Lattice Gases</i> [10]. The award is given annually by the Turkish Association of Newspapers for published single-authored work.
1994	University of Chicago Physical Sciences Division Teaching Prize.
1991-1998	University of Chicago Full Merit Tuition Scholarship Award.

Extended Research Stays:

2016 - 2018	Fellow, Collaborative Research Center 1060, “The mathematics of emergent effects,” Bonn University, Institute of Applied Mathematics.
2016	Instituto de Física (Hugo Fort), Facultad de Ciencias, Universidad de la República, Montevideo, Uruguay (3 months).
2010 - 2011	Visiting Scholar, Mathematics Department (Fraydoun Rezakhanlou), University of California Berkeley, USA (sabbatical year).

Research Interests:

Soft Condensed Matter Physics. Non-equilibrium phenomena, disordered systems and glassy behavior, memory formation in matter, elastic manifolds in random media, dynamic criticality.

Complex Systems. Random networks, statistical inference on random networks, applications of statistical mechanics to combinatorial problems in biology, artificial intelligence/machine learning.

Evolutionary Biology and Ecology. Evolution of antibiotic resistance in bacteria, memory effects in adaptive evolution, population dynamics.

Applied Mathematics. Probability theory (incl. rigorous approaches via analysis and measure-theory), combinatorics, dynamical systems.

Research Experience:

Deformable structures in ordered or disordered media - Theoretical approaches

- Hysteresis, plasticity, yielding, and memory formation [27 – 34, 36 – 42, 45] (*numbers refer to section Publications*).
- Depinning transitions, dynamic criticality, avalanche dynamics, coagulation [22,23,26].
- Ground-state configurations of Frenkel-Kontorowa models, shock waves and characteristic flows of a periodically-driven Burgers equation [19].

Complex systems - Probabilistic approaches

- Metastability and its application to yielding [32].
- Machine learning applications, statistical inference and clustering on random and real-life networks [12,15,18,21,25].
- Competitive games and their hydrodynamic limits [14].
- Application of statistical mechanical ideas to combinatorics: string matching [9,10], longest increasing subsequences [33].

Collaborations with experimentalists

- Antibiotic tolerance and adaptation in bacteria [43].
- Memory formation in folding origami bellows [34].

- Surface physics, structure formation on quasicrystalline substrates, model development, molecular dynamics, comparison with experimental results [11,13,16,17].
- Disordered vortex lattices in Type II superconducting cuprates, analysis of pinned vortex configurations, theoretical modeling and simulations [7].

Biological systems and Ecology

- Bacterial physiology and antibiotic tolerance [43]
- Adaptive evolution on rugged fitness landscapes [35, 44]
- Ecological networks, population dynamics, modeling of plant pollinator interactions [24,25].
- Biological networks, modeling of gene regulation [9,12].

Industry Experience:

2011 - 2012

Artificial Intelligence/Machine Learning techniques for application classification of network packet data without Deep Packet Inspection (DPI), Ericsson Turkey, (EU FP7 MEVICO Project)

Consultancy for Ericsson Turkey within the EU funded MEVICO Project for mobile networks (jointly with Prof. Dr. A. Taylan Cemgil, Computer Engineering Department of Boğaziçi University).

The Mevico project <http://www.mevico.org/index.html> was part of the EU research program Celtic Call7 for research of the network aspects of the 3GPP LTE-mobile broadband network for its evolution in the mid-term in 2011-2014. The company, Ericsson Turkey, was part of this consortium.

The project involved two graduate students supported full-time by the project budget and a client team of three members. Development and application of artificial intelligence/machine learning techniques in order to monitor and control the utilization of the mobile broadband network. The results of this work were published in [21].

1998 - 2002

OpenMake Software, Software Configuration Management Consulting

OpenMake Software <https://www.openmakesoftware.com/> is a software company founded as a start-up in 1995 (*for information on the company see: https://en.wikipedia.org/wiki/OpenMake_Software*). The company specializes in software configuration management (SCM), developing software tools and at the same time provides consulting services in order to implement company-wide SCM best practices.

Work performed while at OpenMake Software:

- **Consulting:** Design and implementation of client-specific methodologies for large US financial, telecommunications and insurance companies. The specific area was improving the production process of in-

house continuous software development with special emphasis on quality assurance, change auditing and disaster-recovery. These projects would require a continuous presence of a consultant at the client-site. I took a leading role in proposing and implementing these projects at companies such as BellSouth (6 months), Procter&Gamble (1 month), NationalCity Bank Cleveland (6 months), Discover Financial Services (3 months), Phoenix Home Life Mutual Insurance Company (6 months).

- **Software Development:** During my employment, OpenMake Software was still a small company developing a widely-used software product. I was therefore also part of many aspects of the software development process, developing reporting tools, utilities that integrate OpenMake software with products by other vendors, and testing OpenMake (quality assurance), writing manuals.

Computer Skills:

Scientific programming languages: C, Fortran, IDL/GDL, Matlab, Python.

System administration: Operating systems, particularly Linux, server maintenance, scripting, and reporting languages such as Shell, PERL and SQL. Software build management and tools: `make`, OpenMake. Software configuration management and tools: `rscs`, CA Harvest Software Change Manager. Moderate database management skills: `mysql` and Oracle databases.

Service to University and Scientific Community:

Academic advisor of graduate students (2005 - 2016).

Member of the departmental commission for the graduate program (2005 - 2016).

Organizer of the weekly departmental colloquia (2004 - 2012).

Member of the executive board of the Faculty of Arts and Sciences (2008 - 2009).

Member of the university-wide commission to coordinate student activities (2006 - 2008).

Referee for *Journal of Chemical Physics*, *Physics Letters A*, *Physical Review B*, *E*, *Physical Review Letters*, *PNAS*, and *Surface Science*.

Panelist for project proposals in condensed-matter physics submitted to the Scientific and Technological Research Council of Turkey (TUBITAK) (2008 - 2016), the Research Council of the Czech Republic, the Dutch Research Council, the Human Frontier Science Program, and the Israel Ministry of Innovation, Science & Technology.

Jury Member of the Turkey chapter for the 2010 L'Oréal-UNESCO Women in Science Awards.

Students supervised or mentored:

Rotem Gross, Post-Doc, U. Cologne, Institute of biological physics. Mentored jointly with Prof. Joachim Krug, leading to publication [44], 2023 – 2025.

Suman Das, Post-Doc, U. Cologne, Institute of biological physics. Mentored jointly with Prof. Joachim Krug, leading to publications [35, 41, 44], 2021 – 2023.

Muna Turki, Master student, U. Cologne, Institute of biological physics. Co-supervision with Prof. Joachim Krug, October 2024.

Dheeraj Kumar, Ph.D. student, PMMH Lab of ESPCI, Paris. Co-supervision of thesis with Dr. Damien Vandembroucq that led to publications [38, 42, 43] and formed part of his thesis “Memory effects and yielding in a mesoscale model of amorphous plasticity”, December 2023.

Mehmet Can Yavuz, “Analyses of literary texts by using statistical inference methods,” M.S. Thesis, Boğaziçi University, January 2016.

Melih Işeri, undergraduate student in Physics, mentee of a two-year undergraduate research project (jointly with Dr. David C. Kaspar) that led to the joint publication “Depinning as a coagulation process,” (publication [26]), Boğaziçi University, 2014 – 2016.

David C. Kaspar, Ph.D. student, Mathematics department, U. of California Berkeley: proposed and supervised a research project that led to two publications [22,23] and formed part of his thesis “Exactly solvable stochastic models in elastic structures and scalar conservation laws,” Ph.D. Thesis, UC Berkeley, Spring 2014.

Mustafa Mert Terzi, “Hysteretic behaviour of a simple charge density wave system,” M.S. Thesis, Boğaziçi University, June 2013 (thesis work that led to publications [27,30, 33]).

Barış Kurt, Ph.D. student, Boğaziçi University, Computer Science and Engineering Department, 2010 - 2011, co-supervised research carried out as part of the MEVICO joint research project with Ericsson Turkey (led to publication [21]).

Neval Eden, Master student, Boğaziçi University, Computer Science and Engineering Department, 2010 - 2011, co-supervised research carried out as part of the MEVICO joint research project with Ericsson Turkey (led to publication [21]).

Cem Yolcu, “Ground state properties of Frenkel-Kontorowa models with scalloped potentials”, M.S. Thesis, Boğaziçi University, June 2007 (publication [19]).

Duygu Balcan, Ph.D. student, Physics Engineering Department, Istanbul Technical University, Co-supervision of thesis with Prof. Ayşe Erzan that led to two publications that led to two publications [9,12] that were part of her thesis “Properties of content-based networks”, March 2007.

Peker Milas, “Generation of 2d and 3d quasicrystalline structures using the projection method”, M.S. Thesis, Boğaziçi University, June 2005.

Burak Bilki, “Structure Formation on a quasicrystalline substrate”, M.S. Thesis, Boğaziçi University, June 2005 (publication [11]).

Publications:

48. M. Mungan, S. G. Das and J. Krug, “Rugged yet accessible – The topography of a fitness landscape describing adaptive evolution,” (*in preparation*).
47. R. Chatterjee, S. Karmakar, M. Mungan and D. Vandembroucq, “Memory behavior of a randomly driven model glass,” [arXiv:2510.05537](#).
46. D. Sarkar, J. N. Nampoothiri, M. Mungan, J. T. Parley, P. Sollich and S. Sastry, “Coarse grained descriptions of the dynamics of yielding of amorphous solids under cyclic shear,” [arXiv:2505.14912](#).
45. M. Mungan, E. Clément, D. Vandembroucq and S. Sastry, “Self-organization, Memory and Learning: From Driven Disordered Systems to Living Matter,” *to appear in Ann. Rev. Cond. Mat.*
44. R. Gross, M. Mungan, S. G. Das, M. Yüksel, B. Meier, T. Bollenbach, A. J. M. de Visser and J. Krug, “Contributions of intra- and extracellular antibiotic degradation to collective β -lactam survival,” [bioRxiv 2024.10.14.618215](#).
43. D. Kumar, M. Mungan, S. Patinet, M. M. Terzi and D. Vandembroucq, “Self-organization and memory in a cyclically driven elasto-plastic model of an amorphous solid,” *Phys. Rev. E* **112** (2025) 035411.
42. M. Mungan, D. Kumar, S. Patinet and D. Vandembroucq, “Self-organization and memory in an amorphous solid subject to random loading,” *Phys. Rev. Lett.* **134** (2025) 178203.
41. S. G. Das, M. Mungan and J. Krug, “Epistasis-mediated compensatory evolution in a landscape with adaptational tradeoffs,” *Proc. Natl. Acad. Sci. USA* **122** (2025) e2422520122.
40. M. Mungan and S. Sastry, “Memory in Soft Matter,” section of the “*Soft Matter Roadmap*,” edited by J.L. Barrat, E. del Gado, S. Egelhaaf, and X. Mao, *J. Phys. Materials*, **7** (2024) 012501.
39. M. Mungan, “Putting memories on paper,” *Proc. Natl. Acad. Sci. USA*, **119** (2022) e2208743119 [Commentary on paper: D. Shohat, D. Hexner, Y. Lahini, “Memory from coupled instabilities in unfolded crumpled sheets,” *Proc. Natl. Acad. Sci. USA* **119**, (2022)].
38. D. Kumar, S. Patinet, C.E Maloney, I. Regev, D. Vandembroucq, and M. Mungan, “Mapping out the glassy landscape of a mesoscopic elastoplastic model,” *J. Chem. Phys.* **157** (2022) 174504.
37. M. Adhikari, M. Mungan, and S. Sastry, “Yielding behavior of glasses under asymmetric cyclic deformation,” [arXiv:2201.06535](#).
36. A. Szulc, M. Mungan, and I. Regev, “Cooperative effects driving the multi-periodic dynamics of cyclically sheared amorphous solids,” *J. Chem. Phys.* **156** (2022) 164506.
35. S. G. Das, J. Krug, and M. Mungan “A driven disordered systems approach to biological evolution in a changing environment,” *Phys. Rev. X* **12** (2022) 031040 *Featured in Physics*.
34. T. Jules, A. Reid, K.E. Daniels, M. Mungan, and F. Lechenault “The delicate memory structure of origami switches,” *Phys. Rev. Res.* **4** (2022) 013128 *Editor’s suggestion*.
33. P. L. Ferrari, M. Mungan, and M. M. Terzi “The Preisach graph and longest increasing subsequences,” *Annals Inst. H. Poinc. D* (2022) (*Online First*), DOI 10.4171/AIHPD/151.
32. M. Mungan, and S. Sastry “Metastability as a mechanism for yielding in amorphous solids under cyclic shear,” *Phys. Rev. Lett.* **127** (2021) 248002.

31. I. Regev, I. Attia, K. Dahmen, S. Sastry, and M. Mungan “Topology of the energy landscape of sheared amorphous solids and the irreversibility transition,” *Phys. Rev. E* **103** (2021) 062614.
30. M. M. Terzi and M. Mungan “State transition graph of the Preisach model,” *Phys. Rev. E* **102** (2020) 012122.
29. M. Mungan, S. Sastry, K. A. Dahmen and I. Regev “Networks and Hierarchies: How Amorphous Materials Learn to Remember,” *Phys. Rev. Lett* **123** (2019) 178002 *Editor’s suggestion*.
28. M. Mungan and T. A. Witten “Cyclic annealing as an iterated random map,” *Phys. Rev. E* **99** (2019) 052132.
27. M. Mungan and M. M. Terzi “The structure of state transitions graphs in systems with return-point-memory: I. General Theory,” *Ann. H. Poinc.* **20** (2019), 2819.
26. M. İseri, D. C. Kaspar and M. Mungan “Depinning as a Coagulation Process,” *EPL*, **115** (2016) 46003 (paper was selected *Editor’s choice* by the editors of the journal).
25. H. Fort and M. Mungan “Using Expectation Maximization and Resource Overlap Techniques to Classify Species According to Their Niche Similarities in Mutualistic Networks,” *Entropy*, **17** (2015) 7680.
24. H. Fort and M. Mungan “Predicting abundances of plants and pollinators using a simple compartmental mutualistic model,” *Proc. Roy. Soc. B*, **282** (2015) 20150592.
23. D. C. Kaspar and M. Mungan “Exact results for a toy model exhibiting dynamic criticality,” *Ann. H. Poinc.*, **16** (2015), 2837-2879,
22. D. C. Kaspar and M. Mungan “Subthreshold behavior and avalanches in an exactly solvable Charge Density Wave system,” *EPL*, **103** (2013) 46002.
21. B. Kurt, A. T. Cemgil, M. Mungan, N. Polat, A. Ozdogan and E. Saygun, “Network Management without Payload Inspection: Application Classification via Statistical Analysis of Bulk Flow Data,” *Future Network and Mobile Summit 2012 Conference Proceedings* (2012).
20. M. Mungan “Comment on Apollonian Networks: Simultaneously Scale-Free, Small World, Euclidean, Space Filling, and with Matching Graphs,” *Phys. Rev. Lett*, **106** (2011) 029802.
19. M. Mungan and C. Yolcu “Frenkel-Kontorowa models, pinned particle configurations, and Burgers shocks,” *Phys. Rev. B*, **81** (2010) 224116.
18. M. Mungan and J. J. Ramasco “Stability of maximum-likelihood-based clustering methods: exploring the backbone of classifications,” *J. Stat. Mech.*, (2010) P04028.
17. S. Burkardt, M. Erbudak and M. Mungan “Nanoepitaxy on quasicrystal surfaces,” *Appl. Surf. Sci.* **256** (2009) 1284.
16. S. Burkardt, S. Deloudi, M. Erbudak, A. R. Kortan, M. Mungan and W. Steurer ”Bulk and surface structure of the clean and adsorbate-covered decagonal Al-Co-Ni quasicrystal,” *J. Phys.: Condens. Matter* **20** (2008) 314006.
15. J. J. Ramasco and M. Mungan “Inversion Method for Content-Based Networks,” *Phys. Rev. E* **77** (2008) 036122.
14. M. Mungan and T. Rador “Dynamics of Three Agent Games” *J. Phys. A: Math. Theor.* **41** (2008) 055002.
13. M. Mungan, Y. Weisskopf and M. Erbudak “Deposition of Adatoms on a Quasicrystalline Surface: Molecular Dynamics Study in 3 Dimensions” *Phys. Rev. B* **76** (2007) 195443,

12. D. Balcan, A. Kabakçioğlu, M. Mungan and A. Erzan “The Information Coded in the Yeast Response Elements Accounts for most of the Topological Properties of its Transcriptional Regulation Network” *PLoS ONE* **2**, e501 (2007).
11. B. Bilki, M. Erbudak, M. Mungan and Y. Weisskopf “Structure Formation of a Layer of Adatoms on a Quasicrystalline Surface: Molecular Dynamics Study,” *Phys. Rev. B* **75** (2007) 045437,
10. M. Mungan, “String Matching and 1d Lattice Gases,” *J. Stat. Phys.* **16** (2007) 207-242.
9. M. Mungan, A. Kabakçioğlu, D. Balcan and A. Erzan “Analytical Solution of a Stochastic Contents Based Network Model,” *J. Phys. A: Math. Gen.* **38** (2005) 9599.
8. M. Mungan, S. N. Coppersmith and V. M. Vinokur, “Diverging Strains Near Threshold; Breakdown of the Elastic Description of a Charge Density Wave Model,” *Tr. J. of Physics* **23**, 113 (1999).
7. M. Mungan, C. -H. Sow, S. N. Coppersmith and D. G. Grier, “Determining Pair Interactions from Structural Correlations,” *Phys. Rev. B* **58**, 14588 (1998).
6. E. Grossman and M. Mungan, “Motion of Three Inelastic Particles on a Ring,” *Phys. Rev. E* **53**, 6435 (1996).
5. P. Constantin, E. Grossman and M. Mungan, “Inelastic Collisions of Three Particles on a Line as a 2-d Billiard,” *Physica D* **83**, 409 (1995).
4. M. Arık, G. Ünel and M. Mungan, “ q -Oscillators, the q -Epsilon Tensor and Quantum Groups,” *Phys. Lett.* **321B**, 385 (1994).
3. M. Arık, E. Demircan, T. Turgut, L. Ekinici and M. Mungan, “Fibonacci Oscillators,” *Z. Phys.* **55C**, 89 (1992).
2. M. Arık and M. Mungan, “ q -Oscillators and Relativistic Position Operators,” *Phys. Lett.* **282B**, 101 (1992).
1. M. Arık and M. Mungan, “Symmetry Changes During the Evolution of the Universe,” *Mod. Phys. Lett.* **5A**, 2593 (1990).

Conferences Convened:

14th Istanbul Statistical Physics Days, Boğaziçi University, 21 - 23 June 2007 (organizer).
 Workshop on new directions in complex systems, Büyükdada, Istanbul, 3-9 September 2006 (co-organizer).
 13th Istanbul Statistical Physics Days, Boğaziçi University, 6 - 8 July 2006 (organizer).
 The Barut Memorial Lecture, in honor of the late A. O. Barut. Selected guest speaker and organized the events: 2004 J. Fröhlich (ETH), 2005 A. Zeilinger (U. Vienna), 2006 K.R. Sreenivasan (ICTP), 2008 M. Günaydın (Penn State), 2008 E. Kapuscik (U. Lodz), 2010 J. Ellis (CERN), 2014 P.B. Wiegmann (U. Chicago).

Schools Organized:

ITAP Summer school and workshop on Complex Systems, 23 August - 1 September 2010, Turunc Marmaris, Turkey (jointly with Assoc. Prof. Dr. Haluk Bingöl),

<http://www.cmpe.boun.edu.tr/research/labs/soslab/activity/tscs2010> (School),
<http://www.cmpe.boun.edu.tr/research/labs/soslab/activity/twcs2010> (Workshop).

Public Outreach Activies:

“Numbers, infinity, and a little bit of physics,” talk given to freshmen undergraduates of Kog University, Istanbul, Turkey, November 2014.

“Numbers, infinity, and a little bit of physics,” (in Turkish) talk given to graduating high school students of Enka High School, Adapazarı, Turkey, December 2013.

Invited Conference Talks:

“TBD,” (distingued speaker), Unifying Concepts in Glass Physics (UCGP 2025), December 2025, Bengaluru, India.

“Self-organization and emergence of memory in a cyclically driven model of amorphous plasticity,” (keynote speaker), International Soft Matter Conference (ISMC), September – October 2025, Chania, Greece.

“Hysteresis and memory formation in non-living and living systems,” (keynote speaker), 14th International symposium on Hysteresis Modeling and Micromagnetics (HMM 2025), May 2025, Torino, Italy.

“Mapping out the topology of the yield surface of a sheared amorphous solid via transition graphs,” Mesoscale modelling of driven disordered materials: from glasses to active matter (CECAM), May 2023, Lausanne, Switzerland.

“Memory Formation in driven disordered systems – dead or alive,” Pathways, Memory, and Emergent Computation in Nonequilibrium System, May 2023, Sede Boquer, Israel.

“Memory Formation in driven disordered systems – dead or alive,” Workshop ”Interaction, Disorder, Elasticity“, April 2023, Les Houches, France.

“Memory Formation in driven disordered systems – dead or alive,” invited talk, EverEvol – Population dynamics: from rare events to evolution, December 2022, Grenoble, France.

“The topology of the energy landscape of a sheared amorphous solid,” invited talk, News from Disordered Elastic Systems, September 2021, Spetses, Greece.

“An almost exactly solvable charge density wave system,” invited talk, Greek-Turkish Conference on Statistical Mechanics and Dynamical Systems, Turunç, Marmaris, Turkey, August 2012.

“Statistical Mechanics and Statistical Inference Methods on Graphs“, invited talk, Feza Gürsey Institute and Imperial College joint *Summer School and Research Workshop on Complexity*, Istanbul, September 2011.

“Frenkel Kontorowa Models, Free Energy Recursions and Burgers Shocks,” invited talk, Greek-Turkish Conference on Statistical Mechanics and Dynamical Systems, Rhodes and Turunç August 2008.

“Contents-based Networks and their Generalization“, invited talk, ISI Foundation Torino, Italy, January 2006 (Exystence Thematic Institue on Interfacing Networks workshop).

Selected Contributed Conference Talks:

”Two-stage adaptive evolution in a rugged yet highly-accessible fitness landscape model with delayed commitment, “ contributed talk, DPG Frühjahrstagung, March 2024, Berlin, Germany.

”A Driven Disordered Systems Approach to Memory Formation Associated with Biological Evolution in Changing Environments, “ contributed talk, Modelling resistance evolution – Theoretical Methodology Symposium, MPI for Evolutionary Biology, April 2023, Plön, Germany.

”Metastability as a Mechanism for Yielding in Amorphous Solids under Cyclic Shear,“ contributed talk, DPG Frühjahrstagung, March 2023, Dresden, Germany.

”Depinning as a coagulation process,“ contributed talk, STATPHYS26, July 2016, Lyon, France.

”An exactly solvable model exhibiting dynamic criticality,“ contributed talk, International Conference on Mathematical Physics 2015, August 2015, Santiago, Chile.

”Who is keeping you in that community?” *NETSCI 09 International Workshop and Conference on Complex Networks and their Applications*, Venice, July 2009.

Seminars:

”Memory formation and mechanical computations in driven disordered systems,“ webinar given jointly with F. Lechenault (ENS Paris), organized by the CNRS-GDR Interaction Désordre Élasticité, October 2024.

”Self-Organization and memory in driven disordered systems – dead or alive,“ H. Heine U. Düsseldorf, June 2024.

”Self-Organization and memory in driven disordered systems – dead or alive,“ U. Göttingen, May 2024.

”Memory Formation in driven disordered systems – dead or alive,“ PMMH, ESPCI, December 2023.

”Memory Formation in driven disordered systems – dead or alive,“ LIPhy, University Grenoble-Alpes, December 2023.

”Memory Formation in driven disordered systems – dead or alive,“ LPTMS, University Paris-Saclay, February 2023.

”Memory Formation in driven disordered systems – dead or alive,“ Colloquium, University of Cologne, December 2022.

”Memory Formation in driven disordered systems,“, Lorentz Institute, Leiden, November 2022.

”Driving with maps or: Finding your way in the glassy landscape of an amorphous solid,“ LPTMS, University Paris-Saclay, March 2020.

”AQS-automata, state transition graphs, return-point-memory, and random maps,“ Institute of Condensed Matter Theory, University of Illinois, Urbana, April 2019.

”Cyclic Annealing, Random Maps & Memories,“ James Franck Institute Seminar, University of Chicago, Chicago, March 2019.

”AQS-automata, state transition graphs, return-point-memory and random maps,“ Program on Entropy, Information and Order in Soft-Matter, ICTS Bengaluru, Bengaluru, India, October 2018.

”Depinning, coagulation, and hysteresis graphs,” KITP program on memory formation in matter, UC Santa Barbara, Santa Barbara, February 2018.

”Depinning as a Coagulation process,” Institute of Theoretical Physics, University of Cologne, Cologne, Germany, May 2017.

”Complex Systems: From sandpiles to ecological networks,” Department of Ecology, CURE, Maldonado, Uruguay, April 2016.

”Depinning: Dynamical Criticality, Avalanches and Coagulation,” Potsdam Institute of Climate Impact Research, Potsdam, Germany, January 2016.

”Dynamic Criticality, Avalanches and Hysteresis,” University of Chicago, The James Franck Institute, Chicago, March 2015.

”Subthreshold behavior and avalanches in an exactly solvable charge density wave system,” Oberseminar Stochastics, Department of Mathematics, University of Bonn, Germany, October 2013.

”Subthreshold behavior and avalanches in an exactly solvable charge density wave system,” University of Wisconsin-Madison, Physics Department, Herb Lecture, August 2013.

”Frenkel Kontorowa Models, Free Energy Recursions and Burgers Shocks,” University of Wisconsin-Madison, Physics Department, Herb Lecture, May 2011.

”Frenkel Kontorowa Models, Free Energy Recursions and Burgers Shocks,” University of Chicago, James Franck Institute Theory Seminar, May 2011.

”Frenkel Kontorowa Models, Free Energy Recursions and Burgers Shocks,” University of California Berkeley, Mathematics Department (talk given at the Probability and Partial Differential Equations seminar), October 2010.

”Who is keeping you in that community?,” ICTP Condensed Matter and Statistical Mechanics group, Trieste, Italy, July 2008.

”String Matching and 1d Lattice Gases,” Torino University, Department of Theoretical Physics, Italy, January 2007.

”Statistical Mechanics of Random Contents-based Networks,” ISI Foundation, Torino, Italy, January 2007.

”Lattice modifications of growing films on aperiodic templates,” Solid State Physics Seminar, ETH Zürich, January 2007.

Extracurricular:

- Jazz music (plays piano)
- Sailing (holds license for small vessel operation)