

**Curriculum Vitae NAME:** Antonio Coniglio  
**BORN:** 5 April 1940  
email: coniglio@na.infn.it

**EDUCATION:**

- Laurea in Physics, cum laude (110/110) Naples University, November 1962.
- Diploma Scuola di Perfezionamento, Naples University, November 1965.

**PRESENT POSITION:**

- Professor Emeritus Univerisità di Napoli "Federico II" 2010-present.
- Associate Researcher, SPIN Institute, CNR.

**PROFESSIONAL AFFILIATIONS:**

- 1981-Present, Research Professor of Physics, Physics Department, Boston University.
- 1980 - 2011 Full Professor in Statistical Mechanics, University of Naples "Federico II" .
- 1965-1980 Professore Incaricato Univerisità di Napoli "Federico II" .
- 1970-1971 Researcher, King's College London
- 1977-1979 Visiting Assistant Professor, Center For Polymer Studies, Boston University.

**SOME SABBATICAL PERIODS:**

- May 1980, Laboratoire Leon Brillouin C.E.N. Saclay, France. Visiting Professor.
- January-February 1985, Centro Brasileiro de Pesquisas Fisicas, Visiting Professor.
- January 1987, Centro Brasileiro de Pesquisas Fisicas, Visiting Professor.
- March - April 1987 St. Francis Xavier University, Antigonish, Nova Scotia, Canada, "James Chair Professor".
- April- July 1988 Laboratoire Leon Brillouin C.E.N. Saclay, France. Visiting Professor.
- September 1989 Service de Physique Theorique, C.E.N. Saclay, Visiting Professor.
- September-October 1992, Ecole Superieure de Physique et Chimie Industrielles, Paris, Joliot Curie Visiting Professor.
- September 1996, Ecole Superieure de Physique et Chimie Industrielles, Paris, Joliot Curie Visiting Professor.
- October 1997, Ecole Superieure de Physique et Chimie Industrielles, Paris, Joliot Curie Visiting Professor.

**JOURNAL EDITOR:**

Associate Editor of Physica A - Elsevier .  
Co-Editor of Fractals - World Scientific  
2005-2008 Co-Editor of EPL: Europhysics Letters  
2008-2011 Advisory Editor of EPL: Europhysics Letters

**STUDENT SUPERVISOR:** Thesis advisor of about 40 undergraduate and 25 graduate students.

**CONFERENCE ORGANIZERS:** Organizer and co-organizer of several international conferences and workshop.

**SOME RESEARCH GRANTS:**

EU Network 1998-2002 "Fractals" Contract Number: ERBFMRXCT9  
EU Network 2003-7 "Dynamical Arrested State of Soft Matter and Colloids" Contract Number MRTN-CT-2003-504712.  
Project FIRB 2003-6 "Colloidal Systems with Short Range Interactions" : Number RBAU01K2E2-002  
Marie Curie European Integration Grant 2004-5 MERGC5-CT-2004-012867

## **OTHER PROFESSIONALE SERVICES:**

Responsible of the Project "Materials and Complex Systems" of CNR 2006-2011

Member of the IUPAP C3 Commission.

Member, Scientific Evaluation Committee Minerva Center Bar-Ilan University, Israel 1993

Member, Scientific Evaluation Committee Minerva Center Bar-Ilan University, Israel 2000

Member, Scientific Evaluation Committee Service de Physique de l'Etat Condens Saclay 2003

Member, Scientific Evaluation Committee Service de Physique de l'Etat Condens Saclay 2006

200-2003 Coordinator of the PhD in Physics, Universit di Napoli

## **MEMBERSHIPS:**

Socio Corrispondente dell'Accademia di Scienze Fisiche e Matematiche della Societa Nazionale di Scienze Lettere e Arti in Napoli.

Membro Benemerito della Societa Italiana di Fisica

## **INVITED TALKS:**

Has given more than 110 invited talks to International Conferences

## **PUBLISHED PAPERS:**

Has published more than 260 papers on International Journals, with a total number of citations 12627, h-index 54 (from Google Scholar) .

## **MAIN RESEARCH ACTIVITY:**

**Key words:** Many-body problem, phase transitions, percolation problem, random systems, polymers, gels, vulcanization, kinetics of phase separations, growth phenomena, fractals, spin glasses, glasses, colloids and granular materials.

## **MAIN SCIENTIFIC ACHIEVEMENTS:**

1) In the early seventies by studying scaling transformations in the context of critical phenomena discovered with M.Marinaro a much wider form of scaling. These new form of scaling contained as a particular case multifractality and multiscaling which became of much interest many years later in a large variety of fields (see paper [11,12,75])

2) Has contributed among the first to the development of correlated percolation [14] , which led later to the development of models for gels [24,26,39,176].

3) With coworkers contributed to the development of random and correlated percolation by developing a general theory to study continuum and correlated percolation based on Meyer cluster expansion, allowing the extension of many results from fluid theory to percolation [16,18].

4) In related work, with coworkers he has proven rigorous inequalities between thermodynamical quantities and percolation quantities in the Ising model, which led to the proof that Ising clusters percolate at the Ising critical point in two dimension but not necessarily in higher dimensions [13,15,20].

5) Proved a relation between pair connectedness and singly connected bonds (also called red bonds) in percolation. One of the consequences of such relation was to show that the fractal dimension of the singly connected bonds in the incipient infinite cluster in random percolation is given by the thermal scaling exponent. Based on these exact results he has contributed to the characterization of the fractal structure of the incipient infinite cluster by putting on a firm foundation the "nodes links and blobs model" for the incipient infinite cluster which is now accepted as the standard model for percolation [33,35,44].

6) One of the consequences of the previous results led Coniglio to prove that the crossover critical exponents of the dilute Ising model and Heisenberg model are related respectively to the fractal dimension of the singly connected bonds and the resistivity exponent. This work explained the experimental results in dilute ferromagnets and gave a geometrical interpretation of why the two crossover exponents were different [33,35,50] .

7) Coniglio and Klein gave a geometrical characterization of the Ising critical point in terms of new clusters (CK droplets) which have the properties of percolating at the Ising critical point with the Ising exponents [25,26,34,38,104] which led to the Swendsen-Wang cluster dynamics. More recently, this cluster definition has received attention in QCD and also in explaining cluster fragmentation in nuclear matter.

8) By analysing the fractal structure of the CK droplets in the  $q$ -state Potts model, provided exact values in 2d for the fractal dimension of the red bonds for any  $q$ . In particular for  $q=0$  he obtained the fractal dimension of the red bonds in the spanning tree[95].

9) Later related the hyperscaling breakdown, with the presence of infinitely many clusters above the uppercritical dimensionality [69,173].

10) Among the first to have contributed with coworkers to the development of multifractality and multiscaling in diffusion limited aggregation model[73,79, 106,123] and in percolation [74,83].

11) Has contributed with Zannetti to the development of phase ordering processes by providing for the first time an analytical solution for the time dependent Ginzburg Landau model, in the limit in which the number of components of the order parameter goes to infinity [103].

12) With collaborators developed a microscopic “spin-glass” type of model that elucidates the phase diagram of a class of materials displaying high-temperature superconductivity [85].

13) Has contributed to a number of topics related to glasses and spin glasses [162,163,175] and their connection to granular materials[137,141,147], by developing with collaborators the frustrated percolation model which maps exactly the spin glass model into a geometrical model[114]

14) Recently has largely contributed to the study of granular systems by developing a statistical mechanics approach[191,222,194,180,234], which allows to treat many problems of granular media, using the standard tools of the statistical mechanics formalism. With this formalism it was possible to show that the jamming transition which occur in granular materials, at mean field level, has the same static and dynamic properties of structural glasses[209,223,227]. A second important result was to show that the segregation phenomena occurring in granular mixtures can be explained in terms of an effective free energy. One of the consequences was to predict large density fluctuations associated to the presence of a critical point in vibrated granular mixtures [214,224,232]. Many of these results have been confirmed by numerical simulations and can also be tested experimentally.

15) Has contributed to discover in colloidal gels, the important role due to finite lifetime bonds in cluster formation[210,225,236].

16) More recently in a combined efforts with physicist and biologist he has suggested a mechanism, for which most eukaryotic cells have the ability to migrate along shallow gradient of chemoattractants (Chemotaxis). This mechanism is able to self tune the cell to an equilibrium state of phase coexistence, that amplifies a shallow gradient of chemical attractant , by phase separating[226,241] .

## PUBLICATIONS

1. A. Coniglio, M. Marinaro and M. Maturi, “Stability Conditions for a Boson System Interacting with a Partly Repulsive and Partly Attractive Potential,” *Nuovo Cimento* 40, 184 (1965).
2. A. Coniglio and M. Marinaro, “On Condensation for an Interacting Boson System,” *Nuovo Cimento* 48, 249 (1967).
3. A. Coniglio and M. Marinaro, “Breakdown of Symmetry and Gapless Spectrum in Many-Boson Systems,” *Nuovo Cimento* 48, 262 (1967).
4. A. Coniglio, Marinaro, and B. Preziosi, “Phase Transition Between Partially Condensed Homogeneous and Periodic Systems,” *Nuovo Cimento* 61, 25 (1969).
5. A. Coniglio, F. Mancini and M. Maturi, “On the Coexistence of Single and Two Particle Condensation in an Interacting Boson Gas,” *Nuovo Cimento* 63, 227 (1969).
6. A. Coniglio and R. Vasudevan, “Generalized Condensation of an Interacting Bose Gas with Pair Hamiltonian,” *Nuovo Cimento* 70B, 39 (1970).
7. A. Coniglio and M. Marinaro, “A Variant of the Scaling Hypothesis Exhibiting Asymmetry,” *Lettere al Nuovo Cimento, Serie I* 4, 391 (1970).

8. A. Coniglio and M. Marinaro, "A Natural Way of Introducing Asymmetry through a Generalization of the Scaling Law," *Physica* 54, 261 (1971).
9. A. Coniglio, "Scaling Parameter and Universality," *Physica* 58, 489 (1972).
10. A. Coniglio, "Universality for Three-Dimensional Ising System with Long Range Potential," *Phys. Lett.* 38A, 105 (1972).
11. A. Coniglio and M. Marinaro, "Non Mixing of Coupling Parameters in Cell-Site Transformation and Scaling Law," *Physica* 65, 611 (1973).
12. A. Coniglio and M. Marinaro, "Weak and Strong Scaling as a Generalization of Kadanoff's Picture," *Physica* 66, 385 (1973).
13. A. Coniglio, "Percolation Problems and Phase Transitions," *J. Phys. A* 8, 1773 (1975).
14. A. Coniglio, "Some Cluster Size and Percolation Problems for Interacting Spins," *Phys. Rev. B* 13, 2194 (1976).
15. A. Coniglio, C. Nappi, L. Russo, and F. Peruggi, "Percolation in the Ising Model," *Comm. Math. Phys.* 51, 315 (1976).
16. A. Coniglio, U. DeAngelis, T. Forlani, and G. Lauro, *J. Phys. A* 10, 219 (1977).
17. A. Coniglio, C. Nappi, L. Russo, and F. Peruggi, "Percolation Points and Critical Point in the Ising Model," *J. Phys. A* 10, 205 (1977).
18. A. Coniglio, U. DeAngelis, and T. Forlani, "Pair Connectedness and Cluster Size," *J. Phys. A* 19, 1123 (1977).
19. A. Coniglio and J. W. Essam, "Percolation Theory in Gas," *J. Phys. A* 10, 1917 (1977).
20. A. Coniglio and L. Russo, "Cluster Size and Shape in Random and Correlated Percolation," *J. Phys. A* 12, 545 (1979).
21. W. Klein, H. E. Stanley, P. J. Reynolds, and A. Coniglio, "Renormalization Group Approach to the Percolation Properties of the Triangular Ising Model," *Phys. Rev. Lett.* 42, 1145 (1978).
22. A. Coniglio, H. E. Stanley, and W. Klein, "A Statistical Mechanical Theory of Polymer Gelation," *Phys. Rev. Lett.* 42, 518 (1979).
23. A. Coniglio, H. E. Stanley, and D. Stauffer, "Fluctuations in the Numbers of Percolation Clusters," *J. Phys. A* 12, L345 (1979).
24. A. Coniglio and M. Daoud, "Polymer Chains and Vulcanization," *J. Phys. A* 12, L259 (1979).
25. A. Coniglio and W. Klein, "Clusters and Ising Critical Droplets: A Renormalization Group Approach," *J. Phys. A* 13, 2775 (1980).
26. A. Coniglio and T. Lubensky, " $\epsilon$ -expansion for Correlated Percolation: Application to Gels," *J. Phys. A* 13, 1783 (1980).
27. D. Stauffer and A. Coniglio, "Speculation on Crossover from Mean-Field to Critical Behavior for Long-Range Site Percolation," *Z. Physik B* 38, 267 (1980).
28. A. Coniglio and D. Stauffer, "Fluctuations of the Infinite Network in Percolation Theory," *Lett. Nuovo Cimento*, 28, 33 (1980).
29. H. E. Stanley, A. Coniglio, W. Klein, H. Nakanishi, S. Redner, P. J. Reynolds, and G. Shlifer, "Critical Phenomena: Past, Present and 'Future'," *Dynamics of Synergetic Systems* (Ed. H. Haken), Springer-Verlag, 1980.
31. S. Redner and A. Coniglio, "On the Crossover Exponent for Anisotropic Bond Percolation," *Phys. Lett. A* 79, 111 (1980).
32. W. Klein and Antonio Coniglio, "Thermal Phase Transitions at the Percolation Threshold," *Phys. Lett.* 84, 83 (1981).
33. A. Coniglio, "Thermal phase transitions of the dilute s-state Potts and n-vector model at the percolation threshold," *Phys. Rev. Lett.* 46, 250 (1981).
34. A. Coniglio, F. di Liberto and G. Monroy, "Site Bond Correlated Percolation in Ferromagnetic and Antiferromagnetic Ising Models: A Renormalization Group Approach" *J. Phys. A* 14, 3017 (1981).

35. A. Coniglio, "Geometrical Structure and Thermal Phase Transitions of the Dilute S-State Potts Model at the Percolation Threshold" In Spring Lecture Notes proceedings *Conference on Disordered Systems and Localization*, Rome (1981) Eds. C. Castellani, C. D. Castro, and L. Peliti.
36. M. Daoud and A. Coniglio, "Singular Behavior of the Free Energy in the SOL-GEL Transition," J. Phys. A14, L108 (1981).
37. H. E. Stanley, A. Coniglio, W. Klein, and J. Teixeira, "Connectivity and theoretical physics: Some applications to chemistry," *Proceedings of the VI Brazilian Symposium on Theoretical Physics* (Rio De Janeiro), Springer Verlag, Heidelberg and New York, 1981.
38. A. Coniglio and F. Peruggi, "Cluster and droplets in the q-state Potts model," J. Phys. A 15, 1873 (1982).
39. A. Coniglio, H. E. Stanley, and W. Klein, "Solvent Effects on Polymer Gels," Phys. Rev. B 25, 6805 (1982).
40. A. Coniglio, F. Di Liberto, G. Monroy, and F. Peruggi, "Clusters and Ising Droplets in the Antiferromagnetic Lattice Gas," Phys. Lett. A 87, 189 (1982).
41. D. Stauffer, A. Coniglio, and M. Adam, "Gelation and Critical Phenomena," Adv. Pol. Sci. (special volume Polymer Networks, ed. K. Dusek) 44, 103 (1982).
42. S. Redner and A. Coniglio, "Flory theory for directed lattice animals and directed percolation," J. Phys. A 15, L273 (1982).
43. A. Coniglio and R. V. Zia, "Analysis of the Migdal-Kadanoff renormalization group approach to the dilute  $s$ -state Potts model: An alternative scheme for the percolation ( $s \rightarrow 1$ ) limit," J. Phys. A 15, L399 (1982).
44. A. Coniglio, "Cluster structure near the percolation threshold," J. Phys. A 15, 3829 (1982).
45. N. Jan, A. Coniglio, and D. Stauffer, "Study of droplets for correlated site-bond percolation in two dimensions," J. Phys. A 15, L699-L704 (1982).
46. J. Roussenoq, A. Coniglio and D. Stauffer, "Study of droplets for correlated site-bond percolation in three dimensions," J. Phys. (Paris) 43, L703-L709 (1982).
47. D. Stauffer, A. Coniglio and D. W. Heermann, "Monte Carlo experiment for nucleation rate in three-dimensional Ising model," Phys. Rev. Lett. 49, 1299-1302 (1982).
48. A. Coniglio, "Potts model formulation of branched polymers in a solvent" J. Phys. A Lett. 16, L187-L191 (1983).
49. A. Coniglio, "Sol-gel transition," Helvetica Physica Acta [based on invited talk at the 1983 *Meeting of the European Physical Society*, Lausanne, March 1983].
50. A. Coniglio, "Percolation effects and disorder," in Proceedings of Erice School on Ferromagnetic Transitions (Springer-Verlag, 1983).
51. A. Coniglio, "Droplet theory of phase transition and metastability," Proceedings of Varenna School, *Highlight on Condensed Matter Physics* (July 1983).
52. A. Coniglio and R. Figari, "Droplet structure in Ising and Potts model," J. Phys. A Lett. 16, L535 (1983).
53. H. E. Stanley and A. Coniglio, "Flow in porous media: The backbone fractal at the percolation threshold," Phys. Rev. B 24, 522 (1984).
54. D. W. Heermann, A. Coniglio, W. Klein and D. Stauffer, "Monte Carlo Simulation of Metastable States in 3D Ising Models," J. Stat. Phys. 36, 447 (1984).
55. J. Kertesz, D. Stauffer and A. Coniglio, "Clusters for random and interacting percolation," Ann. Israel Phys. Soc. (Adler, Deutscher and Zallen, eds), p. 121-148 (1983).
56. H. E. Stanley and A. Coniglio, "Fractal structure of the incipient infinite cluster in percolation," In Percolation structures and processes (eds G. Deutscher, R. Zallen and J. Adler), pp 101-120 (1983).
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58. A. Coniglio and H. E. Stanley, "Screening of deeply invaginated clusters and the critical behavior of the random superconducting network" *Phys. Rev. Lett.* **52**, 1068-1072 (1984).
59. F. Family and A. Coniglio, "Geometrical arguments against the Alexander-Orbach conjecture for lattice animals and diffusion limited aggregates" *J. Phys. A* **17**, L285-L287 (1984).
60. I. Majid, N. Jan, A. Coniglio and H. E. Stanley, "The kinetic growth walk: A new model for linear polymers" *Phys. Rev. Lett.* **52**, 1257-1260 (1984).
61. J. Hellman, A. Coniglio and C. Tsallis, "Fracton and fractal structure of proteins" *Phys. Rev. Lett.* **53**, 1195 (1985).
62. L. J. De Jongh, G. Mennenga and A. Coniglio, "Experimental evidence for fractal properties of the infinite percolation cluster in randomly dilute magnets" *Physica B* **314**, xxx (1985).
63. L. de Arcangelis, S. Redner and A. Coniglio, "Anomalous voltage distribution of random resistor networks and a new model for the backbone at the percolation threshold" *Phys. Rev. B* **31**, 4725-4727 (1985).
64. A. Bunde, A. Coniglio, D. C. Hong and H. E. Stanley, "Transport in a two-component randomly-composite material: Scaling theory and computer simulations of termite diffusion near the superconducting limit" *J. Phys. A Lett.* **18**, L137-L144 (1985).
65. F. Family and A. Coniglio, "Flory theory for conductivity of random resistor networks" *J. de Physique Lett.* **46**, L9 (1985).
66. D. C. Hong, H. E. Stanley, A. Coniglio and A. Bunde, "Physics of two-component randomly-composite material: ant limit, intermediate zone, and termite limit" *Phys. Rev. B* **33**, 4564 (1985).
67. L. de Arcangelis, A. Coniglio and S. Redner, "A connection between linear and nonlinear resistor networks," *J. Phys. A* **18**, L805-L808 (1985).
68. C. Tsallis, A. Coniglio and G. Schwacheim, "Simple renormalization group method for calculating geometrical equation of state," *Phys. Rev. B* **31**, xxx (1985).
69. A. Coniglio, "Shapes, surfaces and interfaces in percolation clusters" in *Finely Divided Matter [Proc. les Houches Winter Conference]*, N. Boccara and M. Daoud, eds., Springer Verlag, New York, 1985.
70. P. Meakin, H. E. Stanley, A. Coniglio and T. A. Witten, "Surfaces, interfaces and screening of fractal structures" *Phys. Rev. A* **32** 2364 (1985).
71. A. Coniglio, "Scaling properties of the probability distribution for growth sites" In *On Growth and Form: Fractal and Nonfractal Patterns in Physics Proc. 1985 Cargese NATO ASI Institute* (Eds. H. E. Stanley and N. Ostrowsky) Martinus Nijhoff Pub, Dordrecht, 1985, page 101.
72. A. Coniglio, "An infinite hierarchy of exponents to describe growth phenomena," in *Fractals in Physics*, (Trieste 1985), L. Pietronero and E. Tosatti eds. (North-Holland, Amsterdam 1986).
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74. L. de Arcangelis, S. Redner and A. Coniglio, "Multiscaling Approach in Random Resistor and Random Superconducting Networks," *Phys. Rev. B* **34**, 4656 (1986).
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76. D. C. Hong, H. E. Stanley, A. Coniglio and A. Bunde, "Random-walk approach to the two-component random-resistor mixture: Perturbing away from the perfect random resistor network and random superconducting-network limits" *Phys. Rev. B* **33**, 4564 (1986).
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84. C. Amitrano, A. Coniglio and F. di Liberto, "Static and Dynamic Properties for Growth Models" *J. Phys. A* **21** L201 (1988).
85. A. Aharony, R. J. Birgeneau, A. Coniglio, M. A. Kastner and H. E. Stanley, "Magnetic Phase Diagram and Magnetic Pairing in Doped  $\text{La}_2\text{CuO}_4$ ," *Phys. Rev. Lett.* **60**, 1330-1333 (1988).
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90. C. Amitrano, de Arcangelis, L., Coniglio, A. and Kertész, J., "Regular versus Irregular Laplacian Growth: Multifractal Spectroscopy" *J. Phys. A* **21**, L15 (1988).
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92. L. de Arcangelis, A. Coniglio and G. Paladin, "Information Dimension in Random Walk Processes," *Phys. Rev. Lett.* **61**, 2156 (1988).
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100. L. de Arcangelis, H.J. Herrmann and A. Coniglio, "Dynamical Phase Transition of Spin Glasses in a Magnetic Field", *J. Phys. A* **12**, 4659 (1989).
101. A. Coniglio, "Fractal Structure of Ising and Potts Clusters: Static and Dynamic Approach". In *Fractals: Physical Origin and Properties* ed. L. Pietronero Ettore Majorana International Science Series (Plenum Press 1989).
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103. A. Coniglio and M. Zannetti, "Multiscaling in Growth Kinetics " *Europhysics Letters* **10**, 575 (1989).
104. A. Coniglio, F. di Liberto, G. Monroy and F. Peruggi, "Exact relations between clusters and thermal quantities" *J. Phys.A*, **22**, L837 (1989).

105. A. Coniglio and M. Zannetti, "Multiscaling and Multifractality" in Proceedings International Conference honoring B.B. Mandelbrot on his 65th birthday, *Physica D* **38**, 37 (1989).
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#### Main Invited Talks

1. 1980 Messina (Italy) Conference on Condensed Matter Physics.
2. 1980 Budapest MECO Conference.
3. 1981 Saarbruken (Germany) MECO Conference.
4. 1981 Salerno (Italy) Conference on Condensed Matter Physics.
5. 1981 Rome Conference on Disordered Systems and Localization.
6. 1983 Lausanne, Meeting of the European Physical Society.
7. 1984 Sao Corrado, Brasil Conference on Condensed Matter Physics.
8. 1984 Orsay, France Workshop on Kinetic and Growth Phenomena.
9. 1985 Les Houches - France International Conference on Physics of Finely Divided Matter.
10. 1985 Cargese - France - Summer School on Growth and Form.
11. 1985 Trieste - International Symposium on Fractals in Physics.
12. 1986 Copenhagen - Nordita Symposium on Frontiers in Condensed Matter Physics.
13. 1986 Stockolm - Conference of the European Physical Society.
14. 1986 Amalfi - International Conference on Random Systems and Critical Phenomena.
15. 1986 Boston Statphys 16.
16. 1986 Orsay - Workshop - Dynamics on fractals and hierarchies of critical exponents.
17. 1987 Bar Ilan, Israel - International Conference on Disordered Systems
18. 1987 Antigonish - Canada - Workshop on Geometrical Aspects of Critical Phenomena.
19. 1988 Les Houches - workshop on Scaling and Universalities.
20. 1988 Archachon - 4th EPS Liquid State Conference.
21. 1988 Paris International Conference ETOPIIM (Electrical Transport and Optical Properties of Inhomogeneous Media).
22. 1988 Paris - CECAM Workshop: Cellular Automata - Applications to Condensed Matter Physics.
23. 1988 Erice International Conference on Fractal in Physics.
24. 1989 Dallas - American Chemical Society.
25. 1989 Rio de Janeiro - Statphys 17.
26. 1989 Nice - Symposium honoring the 65th birthday of B.B.Mandelbrot.
27. 1989 Trieste - Conference INFM.
28. 1990 Budapest - Meco Conference
29. 1990 Cargese - Summer School on "Physics and Geometry".
30. 1990 Plymouth, NH,USA Gordon Research Conference on FRACTALS.
31. 1990 Barbados Workshop on "Physics of Disordered Systems"

32. 1991 Trieste- Adriatic Research Conference on “The Physics of Inhomogeneous Materials”.
33. 1991 Trieste - International Conference on Complex Systems: Fractals, Spin Glasses and Neural Networks.
34. 1992 Università di Salerno “Symposium on Fractals”
35. 1992 Palmi International conference on complex fluids.
36. 1992 Budapest International school on complex systems.
37. 1992 Torino Scuola Nazionale di Fisica della materia
37. 1993 IV Bar-Ilan International conference on Frontiers in Condensed Matter Physics. Tel Aviv “Multiscaling in diffusion limited aggregation”
37. 1993 Idrofractals 1993 International Conference on Fractals in Hydrosience October 11-15 Ischia, Italy, “Multiscaling and Multifractality: localization of growth sites”
38. 1994 Gordon Research Conference on Fractals, San Miniato, Italy 1-6 may “Frustrated Percolation”
39. 1994 First International Conference on Scaling Concepts in Complex Fluids Copanello, Italy, 4-8 July, “Frustrated percolation spin glasses and glasses”
40. 1994 XII Congresso SIBPA (Società Italiana di Biofisica Pura ed Applicata) Mondello, Palermo 23-28 Settembre, “Dynamics of complex systems”
41. 1994 Congresso Nazionale INFM, Brescia 13-16 June.
42. 1994 Convegno settore GNSM, Firenze 2-4 October.
43. 1994 Fall Meeting Material Research Society, Boston November 28-December 2, “Percolation approach to Frustrated systems”
44. 1995 Workshop on Dynamics of Glass-Forming Materials: Theoretical Concepts and Computer Simulations, sponsored by National Institute Standard and Technology. Stevensville Maryland, February 16-19. “Spin glasses and glasses”
45. 1995 International Conference on Future of Fractals Nagoya Japan 25-28 august, “Fractals in the glass transition”
46. 1995 Workshop on non equilibrium phenomena in supercooled fluids, glasses and amorphous materials. Pisa 25-29 september “Frustrated percolation: application to the glass transition”
47. 1996 Convegno Fai Della Paganella 30 march 2 april, “Sistemi vetrosi”
48. 1996 Vietri 2 aprile giornata di meccanica statistica “vetri e vetri di spin”
49. 1996 Parma congresso nazionale di meccanica statistica 24-26 giugno. Sistemi vetrosi e mezzi granulari.
50. 1996 International School of Physics “Enrico Fermi” CXXXIV course The Physics of complex Fluids “Frustration and connectivity in Glass forming Systems and Granular Materials” Varenna 9-19 luglio.
51. 1996 Verona Congresso SIF september 23-27
52. 1996 Kyoto Japan Yukawa International Seminar “Dynamics of Glass Transition and Related Topics” november 12-15.
53. 1997 Andalo, Workshop on Disordered Systems march 3-6.
54. 1997 Vietri Workshop on theoretical Physics march 24-26.
55. 1997 Messina, Intern. Conf. on “The Morfology and Kinetics of Phase Separating Complex Fluids” June 24-28
56. 1997 Cargese Summer School on “Granular Material” September 15-26.
57. 1997 Santa Barbara California, Workshop on “Jamming and Rheology” October 12-26.
59. 1998 Brasilia Workshop on Complex Systems May 4-8 “Spin glasses glasses and granular material”
60. 1998 International Conference on : Percolation and disordered systems-theory and applications July 14-17 1998, Giessen (Germany). “Frustrated percolation”
61. 1998 Pisa II workshop on “non equilibrium phenomena in supercooled fluids, glasses and amorphous materials” 27 Sept-2 Oct. “Universality in glassy systems”
62. 1998 Pisa Workshop on “Granular materials” “Statistical Mechanics Approach to Granular materials”
63. 1998 “Universality in glassy systems” II workshop on “non equilibrium phenomena in supercooled fluids, glasses and amorphous materials”, Pisa (Italy).
64. 1999 StatPhys-Taiwan-1999: Equilibrium and Nonequilibrium Phase Transitions, Taiwan. “Geometrical approach to phase transitions in frustrated and unfrustrated systems”
65. 1999 Messina- International workshop on “RECENT ADVANCES ON THE PHYSICS OF COMPLEX FLUIDS” “Statistical Mechanical Approach to Granular Materials”



- 66 1999 Trieste ICTP-NIS Conference on “UNIFYING CONCEPTS IN GLASS PHYSICS” “Glassy behaviour in granular media”
- 67 2000 Catania - Criss 2000 “Percolation Approach to Phase transitions”
- 68 2000 Messina International workshop “Percolation transitions and and critical points”
- 69 2001 Bar Ilan March 25-28 International Workshop on FRONTIERS IN THE PHYSICS OF COMPLEX SYSTEMS, “Statistical Mechanics of the inherent states of granular media”
- 70 2001 Bielefeld Germany 7-12 may International conference on PERCOLATION PHENOMENA: BASIC TECHNIQUE AND APPLICATIONS, “ Frustrated Percolation: Theory and Applications”
- 71 2001 24 may-28 may Moscow Volga River - Workshop on NEW KINDS OF PHASE TRANSITIONS: TRANSFORMATIONS IN DISORDERED SUBSTANCES. “Statistical Mechanics Approach to Glassy Systems and Granular Materials.
- 72 2001 Merida Mexico 18-13 July International workshop on “SCALING CONCEPTS AND COMPLEX SYSTEMS “ Statistical mechanics approach to the inherent states of glassy systems and granular materials ”
- 73 2001 Cancoun Mexico 15-21 July International Conference on Statistical Physics Statphys 21 “Clusters in Frustrated Systems”.
- 74 2001 Messina 5-8 december, International conference: HORIZON IN COMPLEX SYSTEMS. “Statistical mechanics of inherent states in models of glassy systems and granular media”.
- 75 2002 Rome 27 Feb 2 March, International Conference on UNIFYING CONCEPTS IN GLASS PHYSICS. “Tapping Dynamics and Equilibrium Distribution of the Inherent States in Glassy Systems and Granular Media” .
- 76 2002 BARI - INFM Meeting, “Statistical Mechanics of the Inherent States of Glassy Sytems and Granular Materials”
- 77 2002 Bielefeld June 24 - 28,International Conference on MODELING OF COMPLEX SYSTEMS.NEW PERSPECTIVES IN MATHEMATICS, PHYSICS AND BIOLOGY - “Spin Glasses and Frustrated Percolation”
- 78 2002 Pontignano, Siena (Italy) 30 JUNE–3 JULY Workshop on PERSPECTIVE IN QUANTUM FIELD THEORY, STATISTICAL MECHANICS AND STOCHASTICS. “ Breakdown of Hyperscaling”
- 79 2002 Hotel Santa Fe, Santa Fe, New Mexico, USA, 6 - 9 November, International workshop on ANOMALOUS DISTRIBUTIONS, NONLINEAR DYNAMICS AND NONEXTENSIVITY- “Probability Distribution of the Inherent States of Glassy Sytems and Granular Materials”
- 80 2002, PISA 22-27 September, III Workshop on NON EQUILIBRIUM PHENOMENA IN SUPER-COOLED FLUIDS, GLASSES AND AMORPHOUS MATERIALS “Inherent structures and cell theory for glasses”
- 81 2003 Eilat Israel 5-9 January International Conference on RANDOMNESS AND COMPLEXITY “Cell theory for the glass transition”
- 82 2003 Kangwondo Korea 4-7 February 7th APCTP Winter School on GRANULAR MATERIAL AND COMPLEX SYSTEMS - “Thermodynamics and Statistical Mechanics of Inherent States of Glassy Systems and Granular Materials”
- 83 2003 Boston University 29-30 March Symposium on NON-EQUILIBRIUM STATISTICAL MECHANICS IN THE NEW MILLENNIUM - “ Inherent structures and Cell Theory for the Glass Transition”.
- 84 2003 Varenna 1-11 July INTERNATIONAL SCHOOL OF PHYSICS “ENRICO FERMI- COURSE CLV THE PHYSICS OF COMPLEX SYSTEMS (NEW ADVANCES AND PERSPECTIVES) “Statistical Mechanics Approach to Glassy Sytems and Granular Materials”
- 85 2003 Canberra-Australia 3-7 november 2003 NEW MATERIALS AND COMPLEXITY “Jamming Transition in Granular Materials ”
- 86 2003 Amgra dos Reis Brasile 19-21 november TRENDS IN EXTENSIVE AND NON EXTENSIVE STATISTICAL MECHANICS “Statistical Mechanics of random systems quenched at zero temperature”
- 87 2003 Messina ,Italy 3-7 December , International conference on ”STRUCTURAL ARREST TRANSITIONS IN COLLOIDAL SYSTEMS WITH SHORT-RANGE ATTRACTIONS”, ”Cluster approach to colloidal systems: From chemical gels to colloidal glasses”.
- 88 2004 Monaco Germany International Workshop on ”DYNAMICS IN VISCOUS LIQUIDS”, March 14th-17th,”Cluster and slow dynamics in gelling systems”

- 89 2004 Sitges, Barcelona, SPAIN, 14-18 June Workshop on "JAMMING, YIELDING, AND IRREVERSIBLE DEFORMATION IN CONDENSED MATTER" "Statistical Mechanics Approach to the Jamming Transition in Granular Media"
- 90 2004 Erice (Sicily) 20-26 July International Conference on "COMPLEXITY, METASTABILITY AND NONEXTENSIVITY", "Statistical Mechanics Approach to Granular Media"
- 91 2004 Bangalore India 28-1 July International Conference on UNIFYING CONCEPTS IN GLASSY PHYSICS III, "Slow dynamics in attractive colloidal systems".
- 92 2004 FORTALEZA, BRAZIL 15-18 AUGUST International Conference on PHYSICS SURVEY OF IRREGULAR SYSTEMS, "Dynamical arrest in colloidal systems".
- 93 2005 Winter-Discussion Workshop in Bad Gastein Austria 22-26 January Winter Discussion Workshop on Arrested Soft Matter and Colloids, "Percolation and colloidal gelation in Colloids"
- 94 2005 Tepotzlan Mexico 27 november 2 december Internat. Conf. on Nonlinearity, Nonequilibrium and Complexity: Questions and perspectives in statistical physics, "Cluster formation and complex dynamics in attractive colloidal systems"
- 95 2005 Fiesole, Italy november 11-13, Workshop on Application of Scattering Methods to Investigate the Structure and Dynamics of Soft Condensed Matter, "Complex viscosity behavior and cluster formation in attractive colloidal systems"
- 96 2006 MECO 31 International Conference in statistical physics 23-26 April Primosten, Croatia "Jamming and segregation in granular media: a statistical mechanics approach"
- 97 2006 "IV Workshop on non equilibrium phenomena in supercooled fluids, glasses and amorphous materials" Pisa 17- 22 September. "Static and dynamic heterogeneities in irreversible gels and colloidal gelation"
- 98 2007 "Workshop on Materials Modelling and Simulation" May 22-25, St. Francis Xavier University Antigonish, Nova Scotia. "Dynamical heterogeneities in colloids and glasses"
- 99 2007, 392th WE-Heraeus seminar on 'Transport, Localization, and Fluctuations in Complex Systems', September 2-5, Ilmenau, Germany. "Slow dynamics in complex systems: From Gels to Glasses"
- 100 2008 Workshop on "Crystallization and Jamming in Soft Matter under Driving" , 11-22 Feb Lorentz Center Leiden "Dynamical heterogeneities in glasses gels and granular materials".
- 101 2008 Workshop on "Modelling geophysical systems by means mechanical statistics methods" Ettore Majorana Center, Erice Italy, 27 April - 2 May, "Rheology and Jamming in Granular Media: A Statistical Mechanics Approach"
- 102 2008 7th Liquid Matter Conference, Lund, Sweden, 27 June - 1 July . Plenary talk "Dynamical Heterogeneities: From Glasses to Gels"
- 103 2008 SigmaPhi2008 - "International Conference on Statistical Physics" - Crete 14-18, July. Plenary talk "Dynamical heterogeneities in glasses, gels and granular materials"
- 104 2008 Workshop on "Dynamical heterogeneities in glasses, colloids and granular media" August 25 - September 5, Lorentz Center, Leiden. "Dynamical heterogeneities in glasses, and attractive colloids".
- 106 2008 Conference on "Arrested Matter", Sept 22-26, Taormina Italy, "Dynamical Heterogeneities in Glasses and Gels: Crossover from colloidal gelation to glass transition".
- 107 2008 International Conference "NEXT2008", October 27-31, Foz do Iguacu, Parana, Brazil "Slow dynamics in soft and granular materials"
- 108 2009 Minerva International Workshop on "The Science of Complexity", March 29- April 1, Eilat, Israel, "Complex dynamics in Glasses and Gels".
- 109 2009 Workshop on interdisciplinary topics in Statistical Physics, April 16-18, Venezia, Italy, "Slow Dynamics: From Gels to Glasses".
- 110 2009 83rd American Chemical Society Colloid and Surface Science Symposium. Columbia University New York, NY, June 14-19, "Dynamical Heterogeneities in Glasses and Gels"
- 111 2009 Workshop on Statistical Mechanics of static granular media, Lorentz Center Leiden 6-10 July "The Role of Friction and Shear stress in Jamming Transition".
- 112 2009 Symposium on complex systems in honor of Prof H.E. Stanley, Taormina 20 November "Complex Systems: From Physics to Biology"
- 113 2010 Varenna 29 June-9 July INTERNATIONAL SCHOOL OF PHYSICS "ENRICO FERMI- COURSE CLXXVI " "Slow dynamics in glasses colloids and granular materials "

- 114 2010 "Disorder and heterogeneity in physics" 2010 Santiago del Chile 6-10 December "Dynamical heterogeneities: From gels to glasses"
- 115 2011 "Applications of statistical mechanics to complex systems" Budapest 11-13 January, "Glassy Dynamics and Pacman Percolation".
- 116 2010 International Conference on "Paths in Complexity: Fractals, Superconductivity and Galaxies", Rome Italy 23-24 September, "Slow Dynamics from Gels to Glasses"
- 117 2011 , "HES70: Horizons in Emergence and Scaling", Boston 18-20 March, "Reverse-Percolation: A mechanism for slow relaxation in glassy dynamics"
- 118 2011 , "Perspectives and Challenges in Statistical Physics and Complex Systems for the Next Decade", Natal Brazil, 09-11 November "Pacman Percolation and the Glass Transition"
- 119 2011 "Workshop on amorphous solids" Cuernavaca Mexico 13-25 November "Slow Dynamics in glassy systems"
- 120 2012 , Weizmann Institute of Science, 9th Minerva Winter School, STATISTICAL AND NONLINEAR PHYSICS OF AMORPHOUS SOLIDS Rehovot Israel 19-26 February, "Dynamical heterogeneities: From Gels to Glasses" .
- 121 2012 , XCVIII Congresso Nazionale SIF, Napoli 17-21 Settembre Relazione Generale "Correlation, Connectivity and Complexity in Condensed Matter"
- 122 2012 , The 4th International Symposium on SLOW DYNAMICS IN COMPLEX SYSTEMS Sendai -Japan 2-7 December "Dynamical heterogeneities in complex systems" .
- 123 2012 XVII CONVEGNO NAZIONALE DI FISICA STATISTICA E DEI SISTEMI COMPLESSI, Parma 20-22 Giugno " Complex behaviour in Gels and Glasses"
- 124 2013, Workshop on NONLINEAR RESPONSE IN COMPLEX MATTER Erlangen Germany 25-27 February, "Dynamical heterogeneities in the crossover region from colloidal gels to colloidal glasses".
- 125 2013, Italian-Isreli Meeting on STATISTICAL PHYSICS OF GLASS FORMATION AND THE PROPERTIES OF AMORPHOUS SOLIDS Weizmann Institute of Science, Rehovot Israel 3-7 March "Slow Dynamics in Gels and Glasses" .
- 126 2013 , International CONFERENCE ON COMPLEX SYSTEMS : FOUNDATIONS AND APPLICATIONS. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil, October 29 November 1, "Cell Theory for the glass transition"
- 127 2014 , International Conference on DYNAMIC SYSTEMS: FROM STATISTICAL MECHANICS TO ENGINEERING APPLICATIONS Zurich, January 9-10th "Percolation Approach to Mode Coupling Theory of the Glass Transition"
- 128 2014 NOVEL APPLICATIONS OF STATISTICAL MECHANICS: A CELEBRATION OF SIDNEY REDNER'S CONTRIBUTIONS Boston University May 10 and 11, "Scaling and universality in glass transition"
- 129 2014 CECAM Workshop - PERCOLATION AND THE GLASS TRANSITION, Tel Aviv Israel October 19-23, 2014 "Percolation approach to gels and glasses"
- 130 2015 International Workshop on the STRUCTURE AND DYNAMICS OF SUPERCOOLED WATER AND OTHER GLASSY MATERIALS, Palermo-Italy October 12-15, "Scaling and universality in gels, glasses and mode coupling theory".
- 131 2015 National Meeting on STATISTICAL PHYSICS (ENFE 2015) Vitoria, Brasil november 1-4, "Cluster approach to glassy dynamics with continuously broken ergodicity"
- 132 2015, International workshop on NONLINEARITY, NONEQUILIBRIUM AND COMPLEXITY. QUESTIONS AND PERSPECTIVES IN STATISTICAL PHYSICS. Mexico City, November 29 -December 4, "Scaling and universality in the glass transition"
- 133 2016, International Workshop on JAMMING AND GRANULAR MATTER Satellite meeting of Stat-Phys26, Queen Mary University of London, July 13 - 15 , "Scaling and universality in gel , glass and jamming transition"
- 134 2017, Workshop on "OUT OF EQUILIBRIUM DYNAMICS IN SOFT AND CONDENSED MATTER" Natal (Brazil) August 28 - september 1, "Scaling and universality in glass and jamming transition"