

# Dr Sauro Succi: Curriculum Vitae

April 6, 2017

## Biographical data

Born in Forli, Italy, (1954), married, one daughter.

## Research interests

Computational statistical physics, classical and quantum fluids, kinetic theory, soft condensed matter, high performance computing.

## Permanent Affiliation

Director of Research, Istituto Applicazioni Calcolo, Consiglio Nazionale delle Ricerche, Via dei Taurini 49, 00185, Roma (since 1995).

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Homepage: [www.iac.rm.cnr.it/~succi/](http://www.iac.rm.cnr.it/~succi/)

## Other Affiliations

Research Affiliate, Physics Department, Harvard University, Cambridge, USA (since 2000).

## Education

**1987:** PhD degree in Physics, Ecole Polytechnique Federale de Lausanne, Plasma Physics Research Center;

**1980:** Specialty in Applied Neutronics, Nuclear Engineering Dept., University of Bologna;

**1979:** Degree in Nuclear Engineering, (cum laude), University of Bologna

## Professional Cursus

**1995-current:** Director of Research, Istituto Applicazioni Calcolo, CNR Roma, Head of the group "Computational Modeling of Complex Systems in Fluid Dynamics and Biology";

**1986-95:** Research scientist, senior research scientist, industry sector coordinator at the IBM European Center for Scientific and Engineering Computing, Roma, (1986-95);

**1981-82:** Euratom fellowship at Max-Planck Institut fuer Plasmaphysik, Garching, Germany

## Further appointments

- 2017:** Beta-Plus Foundation Visting Chair, Amsterdam Center for Multiscale Modeling, Holland
- 2016:** Weston Visiting Chair, Weizmann Institute, Rehovot, Israel
- 2014-open:** Visiting Professor of Computational Science, Institute for Applied Computational Science, Harvard University
- 2013-2016:** Member of the Scientific Review Group, European Science Foundation, Strasbourg.
- 2009-2013:** External Senior Fellow, Freiburg Institute for Advanced Studies, Germany
- 2011-2012:** Raman Professor of the Indian Academy of Sciences, Bangalore, India
- 2010-2010:** Visiting Professor, Math. Dept., Yale University
- 2008-2009:** Visiting Scholar, Tufts University
- 2009-2011:** Guest Professor, ETHZ, Zuerich
- 2008-2009:** Visiting Scholar, Initiative for Innovative Computing, Harvard University
- 2008-2012:** CNR representative in the Standing Committee and Core Group of the Physical-Engineering-Science Committee (PESC) of the European Science Foundation, Strasbourg, France.
- 2005-2006:** EPSRC Fellow, Queen Mary College, London, UK
- 2001-2001:** Visiting Scholar, Cell Biology Dept, Harvard Medical School
- 2000-open:** Research Affiliate, Physics Department, Harvard University
- 1998-1998:** Visiting Scholar, Mathematics Department, Yale University
- 1995-1995:** Visiting Professor, Physics and Computer Science Departments, Chicago Univ.
- 1993-1993:** Visiting Professor, Mechanics Department, Paris VI University

## Research activity

My research is centred about the mathematical modeling and computer simulation of complex systems, with special focus on the physics of fluids and its interfaces with material sciences and biology (soft matter). This work covers a wide range of problems in non-equilibrium statistical mechanics, from nuclear fusion plasmas to fully developed turbulence for industrial design, flows in porous media, microfluidics and nanofluidics, all the way down to biopolymer translocation through cell membranes. It also includes quantum and relativistic fluids, such as Bose-Einstein condensates quark-gluon plasmas and relativistic electron flows in graphene.

This activity resulted in nearly 400 papers in international scientific journals, totalling over 9,000 ISI cites, ( $h = 48$ , top-cited 1100+), over 20,000 Google Scholar cites, ( $h = 59$ , top-cited 4000+) and nearly 100 papers in refereed conference Proceedings.

In addition, I have published three books: *Automi Cellulari*, Franco Angeli, Milan, 1991; *An introduction to parallel computational fluid-dynamics*, Nova Science, NY, 1995 and *The Lattice Boltzmann equation*, Oxford University Press, Oxford, 2001. In 2014, Sonke Adlung, Senior Editor of Oxford University Press, praised the book as "*an outstanding success, which has established itself as a landmark publication in the field*". I have also published three edited Lecture Notes: *An introduction to computational physics I: Grid methods* Collana "Appunti", Scuola Normale Superiore di Pisa, 102 p., 2002; *An introduction to computational physics II: Particle methods*; Collana "Appunti", Scuola Normale Superiore di Pisa, 100 p., 2003; *Numerical methods for atomic quantum gases*, (coauthor). Collana "Appunti", Scuola Normale Superiore di Pisa, 177 p., 2004. My name is included in the list of Top Italian Scientists.

([http://www.topitalianscientists.org/Top\\_italian\\_scientists\\_VIA-Academy.aspx](http://www.topitalianscientists.org/Top_italian_scientists_VIA-Academy.aspx))

## Honors, Awards, Distinctions

- 2017:** European Research Council Advanced Grant on "Full scale computational design of porous mesoscale materials"
- 2017:** Aneesur Rahman Prize for Computational Physics, American Physical Society
- 2017:** Solvay Colloquium: Computational Explorations of Complex Flowing matter at the Physics-Biology Interface
- 2017:** Distinguished EPL Referee, European Physical Society
- 2017:** Opening Invited Lecture, Israeli Society of Computational Mechanics, Israel
- 2016:** Member of the Editorial Board of Physical Review E: Computational Physics
- 2016:** Third Graeme Bird Lecture, 30th Int. Symp. on Rarefied Gas Dynamics, Univ. of Alberta, BC, Canada
- 2016:** Plenary talk, 31th Symposium on Naval Hydrodynamics, Monterey, USA
- 2016:** Keynote lecture, 16th Int. Conf. on Computational Science, San Diego, USA
- 2016:** The paper "Lattice Boltzmann 2038" selected for inclusion in the EPL Highlights 2016
- 2015:** *Elected Member of the Academia Europaea (www.ae-info.org)*
- 2015:** The paper "Extended self-similarity in turbulent flows", R. Benzi, S. Ciliberto, R. Tripiccion, C. Baudet, F. Massaioli, and S. Succi, Phys. Rev. E 48, R29 (1993), featured as a PRE milestone paper on occasion of PRE 50,000th publication, PRE Oct. 2015
- 2015:** Outstanding reviewer of Physica A: Statistical Mechanics and Applications
- 2015:** Plenary talk, Int. Conf. on Computer Simulations in Physics and Beyond, Moscow
- 2014:** P.L. Bhatnagar Memorial Lecture, 59th ISTAM Conference, Bangaluru, India (declined for contingent reasons)
- 2014:** Plenary talk, 10th Europ. Conf. on Fluid Mechanics, Copenhagen
- 2014:** Plenary talk, 26th IUPAP Int. Conf. on Computational Physics, Boston
- 2014:** Keynote lecture, Techfest IIT Bombay (declined)
- 2013:** Outstanding Referee of the Physical Review and Physical Review Letters
- 2013:** Senior Visiting Fellow of the Erwin Schroedinger Institute, Vienna
- 2012:** Alexander von Humboldt Award renewal
- 2012:** Inclusion in the list of the Top Italian Scientists
- 2011:** Honorable mention to the Gordon Bell Supercomputing Contest, Seattle, November 2011
- 2010:** Co-finalist of the Gordon Bell Supercomputing Contest, New Orleans, November 2010
- 2009:** Fellow of the Freiburg Institute of Advanced Studies, Freiburg, Germany
- 2008:** The paper "Lattice Gas Dynamics with Enhanced Collisions", F. Higuera, S. Succi, R. Benzi, Europhys. Lett. 9, 345, 1989, has been included in the selection of the 40 most cited papers in Europhys. Lett. since its inception (1986)

- 2007:** Best Workshop Paper Award, 7th Int. Conf. on Computational Science, Beijing, May 2007, M. Fyta, S. Melchionna, E. Kaxiras, S. Succi, "Multiscale modeling of biopolymer translocation through a nanopore", Lecture Notes in Computational Science, 4487, 786 (2007)
- 2006:** Distinguished Annual Lecture, Leicester University, UK
- 2005:** *Killam Award*, Calgary University, Canada
- 2002:** *Alexander von Humboldt Award in Physics*, Germany
- 1998:** Fellow of the American Physical Society, (Computational Physics)
- 1986-95:** Three IBM certificates for outstanding scientific publications

In 2016 I have received the Caterina Sforza Sea, the highest civic honor bestowed by the city of Forlì to his natives.

## Didactical activity

I have taught several courses on computational physics and mathematical modelling of complex systems at the Universities of Rome, Catania, Parma and Tuscia. I have also held series of lectures on Lattice Boltzmann methods at the University of Harvard, Geneva, Zurich, Jyväskylä, Haifa, Taiwan, Academia Sinica, Amsterdam, Nordita and RTH Stockholm and the Erwin Schroedinger Institute, Vienna. In the period 1998-2006, I held graduate courses on lattice kinetic theory and undergraduate classes on numerical modeling of quantum fluids at the Scuola Normale di Pisa. In 2009-11 I have taught non-recurrent graduate courses on computational physics at ETHZ Zuerich. In 2008-9, I held a series of lectures on Multiscale Computing at Harvard University. Since 2014, I hold the course "Computational Models for Fluids and Soft Matter" at the Paul Samuelson School of Engineering and Applied Sciences (SEAS) at Harvard University. I have supervised nearly 30 Master and PhD students, many of which have gone for successful academic careers in Italy and abroad.

## Didactical mentoring and supervision

Co-supervisor of over 30 (master and PhD) thesis works in Mathematics, Physics and Engineering at the Universities of Rome I,II, Catania and Florence.

*E. Foti*, Simulazioni di flussi attraverso mezzi porosi tridimensionali con il Lattice Boltzmann method, Hydraulic Engineering Dept., Catania University, 1989-90; *A. Cancelliere*, Simulazioni di flussi attraverso mezzi porosi tridimensionali con il Lattice Boltzmann method, Hydraulic Engineering Dept., Catania University, 1990-91; *F. Nannelli*, Estensione dell'equazione di Boltzmann a reticoli non-uniformi, Mathematics Dept., Univ. of Florence, 1990-91; *A. Cali*, Problemi di diffusione e dispersione idrodinamica con il metodo dei gas reticolari, Hydraulic Engineering Dept., Catania University, 1991-92; *M. Vergassola*, Lattice Boltzmann method for fluid dynamics, Physics Department, Univ. of Roma I, 1989-90; *F. Massaioli*, Simulazioni di turbolenza convettiva col metodo LBE, Physics Department, Univ. of Rome II, 1990-91; *F. Ruello*, Problemi di diffusione e dispersione idrodinamica reticolare su architetture a parallelismo distribuito, Hydraulic Engineering Dept., Catania Univ., 1990-91; *G. Amati*, Il metodo Lattice Boltzmann su reticolo non uniforme, Physics Department, Univ. of Rome II, 1993-94; *M. de Cicco*, Analisi a basso numero di Reynolds mediante metodi cinetici su reticolo, Mech. Eng. Dept., Univ. Rome II, 1995-96; *G. De Fabritiis*, Cellular automata modeling, University of Bologna, 1995-96; *A. Renda*, Simulazione di flussi comprimibili con metodi cinetici su reticolo, Mech. Eng. Dept. Univ Rome II, 1996-97; *A. Mancini*, Un modello per la descrizione mesoscopica dei processi di solidificazione, Math. Dept., Univ. Roma I, 1996-97; *L. Spagnoli*, Simulazione dell'aerodinamica esterna di un'autovettura mediante tecniche cinetiche, Mech. Eng. Dept., Univ. of Rome II, 1997-98; *G. Amati*, Ph.D Thesis, Lattice Boltzmann simulations of turbulent channel flow, Mech. and Aeronautics Engineering. Dept., Univ. Rome I 1996-98 *F. Mazzocco*, Simulazione dell'aerodinamica esterna di un'autovettura mediante tecniche cinetiche, Mech. Eng. Dept., Univ. Rome II, 1998-99 *V. Mulone*, Lattice Boltzmann simulations for automotive applications, Mechanical Engineering Dept., Univ. Rome II,

1999-2000 *R. Russo*, Aerodynamic design using PowerFlow, Mech. Eng. Dept., Univ Rome II, 2000-01 *F. Perfetto*, Aerodynamic design using PowerFlow, Mech. Eng. Dept., Univ Rome II, 2000-01 *A. D’Orazio*, Lattice Boltzmann simulation of thermal flows, PhD in Mechanical Engineering, Univ. of Rome I, 2005 *F. Tosi*, Lattice Entropic methods, PhD in Mathematics, Univ. of Florence, 2006 *M. Sbragaglia*, Lattice Boltzmann methods for complex flows, PhD in Physics, Univ. Roma II, 2007 *G. Falcucci*, Numerical simulation of multiphase flows. PhD thesis, Mech. Eng., University of Rome III, 2009 *S. Palpacelli*, The quantum Lattice Boltzmann PhD in Mathematics, University of Rome III, 2009, *B. Halde*, Numerical modelling of cell aggregation, Diplom in Chem. Eng., University of Berlin, 2007 *D. Chiappini*, PhD in Mech. Eng., University of Roma II, 2010 *M. Mendoza*, Lattice Boltzmann method for relativistic flows, PhD in Physics, ETH Zuerich, 2012 *A. Fuchs*, Molecular dynamics simulations of nanoflows, Master Thesis in Electronic Eng., Univ of Freiburg, 2012 *F. Mohseni*, Lattice Boltzmann method for magneto-hydrodynamics, PhD in Physics, ETH Zuerich, 2014 *J.D. Debus*, Lattice Boltzmann method for flows on curved manifolds, PhD in Physics, ETH Zuerich, 2016 *A. Montessori*, Lattice methods for complex flows, PhD student, Hydraulic Eng. Dept, Univ. Roma 3, 2016

*Member PhD Dissertation Juries:* Member of over 20 PhD Thesis Jury Committees in Italy (4), Switzerland (12), Germany (2), Finland (1), Ireland (1), Norway (1), Holland(1), Canada(1).

## Scientific Dissemination

Besides professional talk, I have given several dissemination lectures on the science of complex systems to high-school audiences across Italy, in collaboration with the major italian scientific Editor (Zanichelli).

## Main invited talks and keynote lectures

Plenary talk, 32th Symp. on Naval Hydrodynamics, Monterey, California, 2016, Third Graeme Bird Lecture, Int. Symp. on Rarefied Gas Dynamics, Victoria, Canada, 2016, Plenary Talk, Int. Conf. on Computational Science, San Diego, California, 2016, "Lattice Boltzmann across scales: classical, quantum and relativistic, Plenary talk, Int. Conf. on Computer Simulation in Physics and Beyond, Moscow, 2015, "Lattice Boltzmann: a computational chimera", Invited talk, CECAM Workshop on Multiscale Modelling, Madrid, May 2015, "Lattice Boltzmann for fluid flows across scales", Plenary talk, 10th European Conference of Fluid Mechanics, Copenhagen, 2014, " Lattice Boltzmann: A computational framework for flowing matter", Plenary talk, 26th International Conference in Computational Physics, Boston, 2014. Keynote Lecture, Techfest IIT Bombay, Jan 2014 (declined for contingent reasons), Relativistic kinetic theory, *Hans Herrmann Festschrift*, Zuerich, 2014 A crash course in Lattice Boltzmann: in his own city! *Erwin Schroedinger Institute* Vienna, May, 2013, Remembering Steve: Flows, codes and computers, *Steven Orszag memorial*, Yale Univ., Feb. 2013, An Introduction to the Lattice Boltzmann method, *Wide Applied Math Seminar*, Harvard University, Nov. 2012, The Legacy of P.L. Bhatnagar in statistical physics, *Raman Lecture*, Indian Academy of Sciences, Bangalore, Feb. 2012, Relativistic lattice Boltzmann for quark-gluon plasma simulations, *Brookhaven National Lab Colloquium*, Jan 2012 (invited, but not delivered), Lattice Kinetic theory across scales: from turbulence to electron flows in graphene, *Special Lecture, J. Nehru Ctr for Advanced Scientific Research*, Bangalore, India, October 2011, Keynote talk on Lattice Boltzmann modeling of complex flows, *MULTIFLOW 2010*, Brussels, November 2010, Mesoscopic models of soft-flowing materials, *Novel Simulation Approaches to Soft Matter Systems*, Dresden, Sept. 2010, Lattice Boltzmann across scales: from turbulence to DNA translocation *Int. Workshop on the numerical treatment of soil erosion*, Baeza, Spain, Sept. 2010. Lattice Boltzmann modeling for quantum fluids, *Center for Computational Science*, Manno, Switzerland, Dec. 2009, Multiscale Lattice Boltzmann Molecular Dynamics Simulations: translocation of biopolymers through nanopores, *Freiburg Institute for Advanced Studies*, Freiburg, November 2008, Multiscale simulation of nano-biological flows, *Lorentz Center workshop on Physics of Micro and Nano-fluids*, Leiden, June 2008. Multiscale Lattice Boltzmann Molecular Dynamics simulations of biopolymers on the Blue-Genie supercomputer, *5th ICMMES Conference*, Amsterdam, June 2008, Hydrokinetic approach to microfluidics, *SimBioMa Conference*, Konstanz, April 2008, Boltzmann approach to fluid turbulence, *Solvay*

*Workshop: A tribute to Professor Radu Balescu*, Brussels, March 2008, Lattice Boltzmann across scales: from turbulence to DNA translocation, *23rd STATPHYS Conference*, Genova, July 2007, Multiscale Lattice Boltzmann Molecular Dynamics modeling of biopolymer translocation across nanopores, *Computations in Nanotechnology*, Technion University, Haifa, Israel, May 2007, Lattice Boltzmann across scales: from turbulence to DNA Translocation, *Leicester Distinguished Lecture*, Univ. of Leicester, UK, November, 2006, New Frontiers of Boltzmann Kinetic Theory: from turbulence to DNA Translocation, *Killam Award Lecture*, Univ. of Calgary, Canada, Sept. 2006, Lattice Boltzmann Computing, *3rd Int. Conf. on Fluid Mechanics and Fluid Power*, Bombay, December 2006, Plenty of space in the middle: prospects of computational kinetic theory in nanoscience applications, *Synergy between Experiment and Computation in Nanoscale Science*, Harvard, May 2006, Lattice kinetic methods for mesoscale dynamics, *MESODYN Workshop*, Juelich, April 2006, Lattice Boltzmann Computing for Multiscale Applications, *2nd ETHZ Workshop on Multiscale Modeling*, Zuerich, Oct. 2005, Lattice Boltzmann for Computational Fluid Dynamics, *V Symposium on Computational Heat and Mass Transfer*, Paris, May 2005, Recent Advances in Lattice Boltzmann Computing, *6th Asian Conference in Computational Fluid Mechanics*, Taiwan, August 2005, *Third MIT Conference on Computational Fluid and Solid Mechanics*, Boston, June 2005, *Chemistry Department*, Cambridge University, UK, April 2004, *First Reality-Grid Workshop*, Royal Society, London, June 2004, *International Workshop on Numerical and Asymptotic Methods for Kinetic Equations*, Saarland, (Germany), April 2004, Mesoscopic particle methods for complex flows, *ICCS Symposium on Computational Science*, St Petersburg, (Russia), June 2003, Accelerated lattice Boltzmann method for steady-state flows, *11th International Conference on Fluid Dynamics and Soft Condensed Matter*, Shanghai, August 2002, Lattice Boltzmann methods for reactive micro-flows, *SIMU Conference on Computational Physics*, Konstanz, September 2001, Multiphysics applications of the Lattice Boltzmann method, *Europhysics Conference on Computational Physics, CCP01 Aachen*, Sept. 2000, An introduction to the lattice Boltzmann method, *China-Europe-USA Fluid Mechanics Symposium*, Beijing, August 1999, Elimination of fast variables via fictitious lattice dynamics, *Summerschool on "Computer simulations of rare events and the dynamics of classical and quantum condensed phase systems"*, Lerici, July 1997. Application of Lattice Boltzmann Methods to Fluid Dynamics, *AGARD Conference 578, Progress and Challenges in CFD Methods and Algorithms*, Sevilla, Sept. 1996, Lattice Boltzmann method: a review with a glance to astrophysics, *Int. Workshop on "Cellular Automata Models: Prospects in Astrophysical Applications"*, Lieges, Oct. 1992, *Europhysics Conference on Computational Physics*, Prague, CCP92, Sept. 1992, *5th Symposium on Discrete Simulation of Fluid Dynamics*, Princeton, June 1992, Hydrodynamic behaviour of the Lattice Boltzmann Equation, *Workshop on "Numerical methods for the Simulation of Multi-Phase and Complex Flow"*, Shell Lab, Amsterdam, 1990. *2st IBM Academic and Research Symposium on Large Scale Computing*, la Hulpe, Belgium, March 1988.

## Project management

- **1986-1995:** IBM coordinator of several projects with industrial partners, such as Fiat, Piaggio, ENI, Air Liquide, Rhone-Poulenc, MeteoFrance, Renault, Daimler-Benz, Shell, Brown-Boveri, Boeing, Ford Motors, EXA Corporation.

- **1995-current:** Principal IAC investigator on the following grants:

*NANOJETS*, Nanofluidics, ERC Starting Grant Project 306357, (2013-18), 180 Keur; Development of numerical simulation methods for electrohydrodynamic jet flows, with special focus on the electrospinning process. *INFLUS*, Microfluidics, European Community STREP Project NMP-031980, (2006-9), 500 Keur; Development of numerical simulation tools for the design of microfluidic devices "*Modelistica di flussi turbolenti con metodi di cinetica su reticolo Lattice Boltzmann*", Research contract, ETA srl-IAC, (2005-6), 15Keur; Development of numerical methods for the simulation of turbulent flows for aerodynamic design, *Lattice BGK simulator*, Research contract with Regione Lazio, Roma, (2005), 50Keur; Development of numerical methods for the simulation of turbulent flows for aerodynamic design, 50Keur *Mathematical modelling of microreactors*, Research contract with Unilever (UK) and Numidia (ITA), (2003), 10KEur; Lattice kinetic methods for the design of microfluidic reactors, *Numerical methods for complex flows of industrial interest, (CNRC00BCBF-001)*, National Research

Council Grant "Agenzia 2000", (2001), 30Keur; Lattice Boltzmann methods for automotive design *Mathematical modeling of the collective dynamics of multi-cellular biochemical systems*, Armenise-Harvard Foundation Research Grant, Cell Biology Dept., Harvard Medical School and IAC, (2001), 20Keur; Development of an immune system simulator, *"Multiscale modelling of damaging effects from reactive microflows in disordered media"*, IAC, Harvard University, Russian Acad. Sciences, Krasnoyarsk, NATO grant (PST.CLG.976357), (2000), 10Keur; Multiscale models for chemical reactive flows in porous media, with focus on heterogeneous catalysis, *"Kinetic theory method for Large Eddy Simulation of Turbulence"*, DMS-9974289, National Science Foundation (USA), Math. Dept. Yale, IAC, (1999), 250KUSD; Theoretical and computational tools for turbulence modelling, *"Bridging the space and time scales: a computational approach"*, European Science Foundation, (1999-2003). *"Analisi del campo di moto dell'aria all'interno del vano motore di un autoveicolo"*, Research contract Univ. Roma I,II-IAC-FIAT, (1998-2000), 30Keur; Lattice Boltzmann models for turbulent flows in complex geometries, *"Microscopic simulation of heterogeneous catalysis"*, Center for Non-Linear Physics, Universitè Libre Brussels, Belgium-Italy scientific cooperation agreement, (1997-8), 5Keur; Lattice gas and lattice Boltzmann methods for the simulation of heterogeneous catalysis *"Turbulence and Combustion Modeling on Massively Parallel Machines"*, ENEA- University of Rome, (1996-98), 15Keur.

Development of massively parallel codes for the simulation of turbulent combustion

## Other professional services

### Editorial activity

- *Associate Editor*, Physical Review E, J. Sci. Comp., Int. J. Mod. Phys C: Physics and Computers, Applied Rheology, Physica A, Commun. in Comput. Phys., Europhys. Lett., J. Stat. Phys.: Theory and Experiment, Computing, Frontiers of Computational Physics, Scientific Reports, Journal of Computational Science.
- *Guest Editor*, Transport Theory (1993), Phil. Trans. Roy. Soc. (2000, 2010), Entropy (2015).
- *Referee* for nearly 100 international Journals, including: Nature Phys., Phys. Rev. Lett., Phys. Rev. A,B,D,E,X, PNAS, Phys. Fluids, EPL, J. Comp. Phys, J. Chem. Phys, Nature Sci. Rep..
- *Evaluator* for numerous national and international research funding Agencies, Foundations and Academies, including: ERC (European Research Council), INFN (National Institute for the Physics of Matter), MURST (Italian Ministry for University and Research), Italian SuperComputing Resource Allocation (ISCRA), Dublin Research Institute, Ireland, Swiss Supercomputing Center, The Partnership for Advanced Computing in Europe (PRACE), Swiss Polytechnic Institute Zuerich, Ministry of Education, Hellenic Republic, ICTP, Trieste, Deutsche Forschung Gesellschaft, Centre Europeen de Calcul Atomique and Moleculaire (CECAM), Academy of Finland, Academie Wallonie-Bruxelles, NATO Scientific Exchange Program, Alexander von Humboldt Foundation, Philip Leverhulme Prize Foundation (UK), Trinity College, Cambridge (UK) Branco-Weiss Foundation, (Switzerland), Josef Krainer Prize, (Austria), Paul-Scherrer Institute, (Switzerland), Romanian National Authority for Scientific Research and Innovation, European Science Foundation, Swiss National Science Foundation, Dutch Basic Science Funding Program, Fonds National de Recherche Luxembourg, Netherlands e-Science Center, National Science Foundation, USA, Research Council of Canada, Stony Brook, Princeton, Columbia University, Haverford College. Hong-Kong Research Council, American University in Armenia, Israeli Science Foundation, Tata Institute of Fundamental Research (India), Jawarhal Nehru Research Center, India, Indian Center of Science Education and Research, Harvard Society of Fellows.

### Boards and Scientific Committees

Member of over fifty internal scientific Committees and Advisory boards of scientific/industrial Consortia.

- *Scientific Consortia:*

Member of the Scientific Advisory Committee of the European Center for Atomic and Molecular Computing (CECAM), 2016;

Chairman of the Scientific Advisory Board of the UK Consortium on Mesoscale Engineering Sciences (COMES), 2013-current; Member of the Scientific Committee of CRS4 (Centro Ricerche Sviluppo Studi Superiori Sardegna), 2001; Member of the scientific advisory board of EXA Corporation, Boston (USA), 2000-current; Member of the scientific board of SCIRE: Scientific Consortium for Industrial Research, (FIAT Elasis-University of Rome), 2001-2. Member of the Scientific Board of "Consorzio Archimede", (IBM-Finisiel-Catania University), 1993-95; Member of the special committee on "Environmental Modelling Project", appointed by the CRS4 (Centro Ricerche Sviluppo Studi Superiori Sardegna), 1991;

- *Scientific Committees:*

Member and twice chairman of the scientific committee on "Discrete Simulation of Fluid Dynamics" for the last 20+ years, 1994-current, Princeton, Oxford, Tokyo, Santa Fe, Cargese, Beirut, Boston, Kyoto, Geneva, Banff, Florianopolis, Beijing, Rome, Fargo, Bangalore, Yerevan, Paris, Edinburgh; Member of the National Research Council committee for national fellowship assignment, Mathematics Group, October 1996. Chairman appointed by IBM Europe of the IBM Summer Institute on Computational Fluid Dynamics (Oberlech, August 1992) Chairman appointed by the European Mechanic Council, of EUROMECH 287 "Discrete Models in Fluid Dynamics: theory, numerical simulation, experiment", (Cagliari, Sept. 1992) Member of Scientific Advisory Committee of Physics Computing '94, appointed by Computational Physics Group, European Physical Society, 1994; Member of Scientific Committee of the Symposium "Automi cellulari per Ricerca e Industria", Rende (Italy), September 1994; Chairman of the tutorial on "Programming Tools in High performance Computing", High Performance Computing and Networking European conference, Milan, 1995; Chairman of the 'Special Technological Session' on Parallel Computing, ECCOMAS conference, Paris, Sept. '96;. Member of Scientific Committee of the Euroconference "Microscopic approach to complexity in non-equilibrium molecular simulations", Lyon, July '96; Member of Scientific Committee of the Symposium "Automi cellulari per Ricerca e Industria", Milan (Italy), Oct. '96; Member of the National Research Council committee for international fellowship assignment, Mathematics Group, April '97; Member of the scientific committee of the Year Study "Mathematical Problems in Fluid Dynamics", Rome, July, 1997; Member of the European organizing committee of "ECCOMASS 98", Athens, Sept. '98; Boston, April '98; Member of the organizing committee of "High-Performance Computing Symp.", San Diego, April 99;. Member of the organizing committee of "High-Performance Computing Symp.", Washington D.C., April 2000; Member of the organizing committee of "High-Performance Computing Symp.", San Diego, April 2001; Member of the scientific committee of the Int. Symp. "Bridging the time scales", Konstanz, Sept. 2001; Member of the National Research Council Selection Committee for the appointment of a permanent research position at Istituto Applicazioni Calcolo, 2001r;. Member of the scientific committee, Picone Lectures, Roma, 2002; Member of the organizing committee of "High-Performance Computing Symp. 2002", San Diego, April 2002; Member of the International scientific committee, Int. Conf. Comp. Sci. ICCS 2003, St Petersburg, 2003; Member of the International scientific committee, Conference on Computational Physics 2004, Genoa, Italy, Sept. 2004; Member of the international scientific committee, INFN Meeting, Genoa, Italy, June 2004; Co-chairman of the minisymposium on Advances in Discrete Kinetic Theory, National Symp. of Italian Industrial and Applied Math Soc., Venice, Sept. 2004; Co-chairman of the minisymposium on Lattice Boltzmann methods, 3rd MIT Conference on Computational Fluid and Solid Dynamics, Boston, USA, June 2005; Member of the international scientific committee, Int. Conf. on Comput. Heat and Mass Transfer, Paris, May 2005; Member of the International scientific committee, Conference on Computational Physics 2007, Brussels, Belgium, Sept. 2007; Chairman of the European Science Foundation Workshop "Microfluidics: Theory and Experiments", Frascati, September 2007; Member of the International scientific committee, 1st Black Forest Conference on Soft Matter Simulation, Freiburg, Germany, July 2009; Co-organizer of the workshop "Multiscale Fluid Dynamics with Lattice Boltzmann", Lorentz Center, Leiden University, Feb. 2011; Member of the International Scientific/Advisory Committee of Conference on Mathematical Modeling in Physical Sciences, Budapest, 2012 Co-organizer of the *Solvay Symposium* on Multiscale Modeling at the Biology/Chemistry/Physics interface, Brussels, Belgium, 2016;



## **Affiliations and Societies**

American Physical Society, European Physical Society, Italian Institute of Matter Physics (INFN, 1998-2006) and Italian Institute Nuclear Physics (INFN, 2012-13).

## **Languages**

Dr Succi is fluent in English and French and survives reasonably on his German and Spanish.