CURRICULUM VITAE

Nicola Manini	
birth	Cles (Trento, Italy), 6-06-1967
address	Physics Department
	Università degli Studi di Milano
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tel	+39 02 50317355
	mailto:nicola.manini@fisica.unimi.it
	`http://materia.fisica.unimi.it/manini/`
OrcId	orcid.org/0000-0003-4374-6374
ResearcherId	A-7632-2018

Appointments

2011- : associate professor - Università degli Studi di Milano, Italy.

2001-2011: assistant professor - Università degli Studi di Milano, Italy.

2000-2001: research scientist - I.N.F.M. and SISSA - Trieste, Italy, in E. Tosatti's group.

1995-2000: research scientist - E.S.R.F. - Grenoble, France, in M. Altarelli's group.

1992: 6 months' scholarship holder - Yale Univ. - New Haven CT, USA, in F. Iachello's group.

Education

1995, Oct. 27 - Ph.D. in Condensed Matter Theory at SISSA - Trieste - Italy cum summa laude. Supervisor: E. Tosatti. External referee: D. Baeriswyl. Thesis title: Electron - Vibron Coupling in Charged Fullerene, Berry Phase, and Superconductivity, `https://iris.sissa.it/handle/20.500.11767/3874` .

1991, Sep. 19 - M.Sc. in Physics at Università degli Studi di Trento - Italy, with full marks and honor 110/110 cum laude. Thesis title: Vibrational Spectroscopy of Four-atomic Molecules. Supervisors: F. Iachello (Yale University), S. Oss, and M. Scotoni (Trento University).

Current Research Projects

Nanofriction: understanding the nanoscale mechanisms for the conversion of mechanical energy into heat; bridging the gap from the nano to the macro scale; friction and dissipation in layers of colloidal particles; nanomanipulation of nano clusters or pieces of layered materials.

Impurity states in semiconductors, and their role for electron transport in the Coulomb-blockade regime.

Structural and transport properties of nanoconfined ionic liquids.

Research Focus

NM has been carrying out theoretical/computational research encompassing a broad range of themes and phenomena in the field of friction at the atomic scale. In detail, NM has contributed to the discovery and characterization of soliton-related velocity-quantization phenomena in models for the sliding of solid surfaces separated by hard lubricants. NM's group has brought this this phenomenon from the domain of 1D models to realistic 3D conditions, and connected it with known dynamical synchronization phenomena of the Shapiro-steps type. Related research has focused on energy dissipation in quantum-mechanical mesoscopic models, energy transport in quasicrystals, and friction/dissipation/synchronization in colloidal layers. NM has lead a COST Action on nano and mesoscale friction, and has contributed to the assessment of the present state of the art of this field, with a Reviews of Modern Physics Colloquium. Research in nanofriction involves collaboration with several top scientists in the field, including O.M. Braun, E. Gnecco, G.E. Santoro, E. Tosatti, M. Urbakh, A. Vanossi, S. Zapperi.

Further interests of NM's research include:

- Point defects in silicon (collaboration with S. Achilli, E. Prati and G. Onida).
- Strain effects on the band structure of semiconductors (collaboration with G.M. Vanacore, F. Montalenti, A. Tagliaferri, G. Onida).
- The structuring of thin films of organic ionic liquids in contact with solid surfaces, and their rheologic properties (collaboration with P. Ballone and A. Podestà).
- Radiation-matter scattering beyond the perturbative limit, with applications to free-electron laser high-intensity radiation pulses (collaboration with G. Onida).
- Ab-initio and model simulation of structural, mechanical, spectroscopic, and reactivity properties of linear chains composed by sp-hybridized carbon, the so-called carbynes (collaboration with G. Onida, P. Milani, and P. Piseri).
- The collective dynamics of ultracold interacting atomic fermions, bosons, and mixtures thereof. NM's research on ultracold fermions in the crossover from the Bardeen-Cooper-Schrieffer (BCS) limit to the Bose-Einstein-Condensate (BEC) limit had a significant impact with: (i) a mean-field expression for the self-interaction, (ii) the nonlinear dynamics of atomic gas droplets in experimentally relevant configurations, and (iii) an expression for the condensate fraction (collaboration with L. Salasnich, A. Parola, and F. Toigo).

- Ab-initio self-energy corrections for the electron dynamics in metals: a procedure was developed to account systematically for the Drude contribution to the dielectric response of metals, with applications for the ab-initio evaluation of optical and electron-energy-loss spectra (collaboration with G. Onida).
- The vibrational spectra of polyatomic molecules. NM proposed a novel method to compute ab-initio the full vibrational spectrum, including high overtone and combination states, in the spectral regions where anharmonic effects are dominant (collaboration with T. Sedivcova). NM's early interest in molecular spectroscopy arose in his master's thesis work, where he applied algebraic models to analyze the vibrational spectra of HCNO and H_2O_2 (software maintained at `http://alpha.science.unitn.it/~oss/vibr3at.html`).
- Fundamental quantum mechanics: NM introduced the concept of off-diagonal geometric phases, extending the traditional Berry phase to open paths and multiple quantum states (collaboration with F. Pistolesi).
- Electron-phonon interaction and dynamic Jahn-Teller effect. NM investigated how the ground-state symmetry of the entangled vibrational-electronic (vibronic) motion is affected by a geometric phase (collaboration with E. Tosatti and P. De Los Rios).
- Fullerene ions and their solid-state compounds. By means of ab-initio simulations, NM investigated (i) the electron-vibration couplings in C_{60} ionic states; (ii) the electron-electron screened Coulomb couplings in the degenerate shells of C_{60} ions; (iii) the structure of novel intercalated solid-state compounds of C_{60}. Additionally, NM constructed and studied models for several experimental phenomena including: (i) the anomalous attachment of thermal electrons to fullerene; (ii) the reduction of the magnetic g-factor of fullerene anions; (iii) phonon shakeups in photoemission from molecular C_{60}, with full account of vibronic interaction in the final C_{60}^+ states; (iv) pairing and superconductivity in solid-state ionic compounds (collaborations with E. Tosatti, G.E. Santoro, M. Fabrizio, O. Gunnarsson, A. Auerbach, A. Potočnik).
- Electron-electron correlation, including (i) photoemission from heavy-fermion metals, within the Kondo lattice model, (ii) the insulating and superconducting states of alkali-doped C_{60} materials such as $NH_3\,K_3C_{60}$, and (iii) magnetic circular dichroism in X-ray absorption spectroscopy of metallic Ni (collaborations with T.A. Costi, G.E. Santoro, and M. Altarelli).

In carrying out his research, NM has collaborated with several scientists, notably young researchers, Ph.D research students and undergraduates. Co-authorship in the publication list cover these interactions at least partly. Among those collaborators, a mention should be made of T. Sedivcova, whom NM directed for her postdoc work in Milano from Mar 01, 2007 to Nov 30, 2008.

Research Grants

2012-2017: NM led the collaborative effort culminating in the COST Action Understanding and Controlling Nano and Mesoscale Friction, approved in May 2013, and running from 08/10/2013 to 07/10/2017 `http://www.cost.eu/domains_actions/mpns/Actions/MP1303` , on an annual budget in the 130 Keuro region, involving 200+ participants from 27 countries.

The Action web site http://www.nanofriction.org/ records the organized events. NM has served MP1303 as Chair.

2015-2018: participation to a H2020 Innovative Training Network (ITN) Excellent Science, Call H2020-MSCA-ITN-2015, in the role of local coordinator (scored above threshold but not funded, resubmitted 2016, 2017, and 2018).

2001-current: participation to several funded projects (several Italian PRIN/COFIN, FIRB, the EU-funded projects NANOQUANTA Network of Excellence - VI FP - and e-I3-ETSF - VII FP).

Teaching Experience

Supervised students (University of Milano):

Ph.D. in physics:

1. A. Bordoni - http://materia.fisica.unimi.it/manini/theses/BordoniPhD.pdf

M.Sc. (laurea magistrale) in physics:

18. A. Silva - http://materia.fisica.unimi.it/manini/theses/silva.pdf
17. M. Mantovani - http://materia.fisica.unimi.it/manini/theses/mantovani.pdf
16. F. Arrigoni - http://materia.fisica.unimi.it/manini/theses/arrigoni.pdf
15. P. Ponzellini - http://materia.fisica.unimi.it/manini/theses/ponzelliniMag.pdf
14. S.V. Paronuzzi Ticco - http://materia.fisica.unimi.it/manini/theses/paronuzziMag.pdf
13. R. Manenti - http://materia.fisica.unimi.it/manini/theses/manenti.pdf
12. E. Arduca - http://materia.fisica.unimi.it/manini/theses/arduca.pdf
11. D. Dragoni - http://materia.fisica.unimi.it/manini/theses/dragoni.pdf
10. N. Ferri - http://materia.fisica.unimi.it/manini/theses/ferriMag.pdf
9. I.E. Castelli - http://materia.fisica.unimi.it/manini/theses/castelliMag.pdf
8. C. Negri - http://materia.fisica.unimi.it/manini/theses/negriMag.pdf
7. M. Cesaratto - http://materia.fisica.unimi.it/manini/theses/cesarattoMag.pdf
6. F. Bonelli - http://materia.fisica.unimi.it/manini/theses/bonelliMag.pdf
5. A. Miglio - http://materia.fisica.unimi.it/manini/theses/miglio.pdf
4. M. Cazzaniga - http://materia.fisica.unimi.it/manini/theses/cazzaniga.pdf
3. P. Gattari - http://materia.fisica.unimi.it/manini/theses/gattari.pdf
2. A. Del Monte - http://materia.fisica.unimi.it/manini/theses/del_monte.pdf

1. A. Bordoni - http://materia.fisica.unimi.it/manini/theses/bordoni.pdf

B.Sc. (laurea triennale) in physics:

64. M. Caresana - http://materia.fisica.unimi.it/manini/theses/caresana.pdf
63. M. Colombo - http://materia.fisica.unimi.it/manini/theses/colombo.pdf
62. G. Riva - http://materia.fisica.unimi.it/manini/theses/riva.pdf
61. M. Rossini - http://materia.fisica.unimi.it/manini/theses/rossini.pdf
60. S. Trevisan - http://materia.fisica.unimi.it/manini/theses/trevisan.pdf
59. E. Tentori - http://materia.fisica.unimi.it/manini/theses/tentori.pdf
58. C. Apostoli - http://materia.fisica.unimi.it/manini/theses/apostoli.pdf
57. C. Paulin - http://materia.fisica.unimi.it/manini/theses/paulin.pdf
56. L. Consonni - http://materia.fisica.unimi.it/manini/theses/consonni.pdf
55. M. Bellagente - http://materia.fisica.unimi.it/manini/theses/bellagente.pdf
54. P. Torta - http://materia.fisica.unimi.it/manini/theses/torta.pdf
53. A. Stenco - http://materia.fisica.unimi.it/manini/theses/stenco.pdf
52. J. Ciccoianni - http://materia.fisica.unimi.it/manini/theses/ciccoianni.pdf
51. M. Bozzetti - http://materia.fisica.unimi.it/manini/theses/bozzetti.pdf
50. G. Giusti - http://materia.fisica.unimi.it/manini/theses/giusti.pdf
49. A. Culatti - http://materia.fisica.unimi.it/manini/theses/culatti.pdf
48. M. Redaelli - http://materia.fisica.unimi.it/manini/theses/redaelli.pdf
47. F. Di Giovanni - http://materia.fisica.unimi.it/manini/theses/di_giovanni.pdf
46. F. Civillini - http://materia.fisica.unimi.it/manini/theses/civillini.pdf
45. G. Fornasier - http://materia.fisica.unimi.it/manini/theses/fornasier.pdf
44. P. Valena - http://materia.fisica.unimi.it/manini/theses/valena.pdf
43. M. Mirigliano - http://materia.fisica.unimi.it/manini/theses/mirigliano.pdf
42. S. Mandelli - http://materia.fisica.unimi.it/manini/theses/mandelli.pdf
41. F. Vannini - http://materia.fisica.unimi.it/manini/theses/vannini.pdf
40. A. Nomellini - http://materia.fisica.unimi.it/manini/theses/nomellini.pdf
39. T. Meledina - http://materia.fisica.unimi.it/manini/theses/meledina.pdf
38. J. Marchi - http://materia.fisica.unimi.it/manini/theses/marchi.pdf
37. C. Agnesi - http://materia.fisica.unimi.it/manini/theses/agnesi.pdf
36. C.M. Sanavio - http://materia.fisica.unimi.it/manini/theses/sanavio.pdf
35. A. Falbo - http://materia.fisica.unimi.it/manini/theses/falbo.pdf
34. M. Invernizzi - http://materia.fisica.unimi.it/manini/theses/invernizzi.pdf

33. F. Delodovici - http://materia.fisica.unimi.it/manini/theses/delodovici.pdf
32. T.M. Mazzolari - http://materia.fisica.unimi.it/manini/theses/mazzolari.pdf
31. A. Vigentini - http://materia.fisica.unimi.it/manini/theses/vigentini.pdf
30. G. Faraone - http://materia.fisica.unimi.it/manini/theses/faraone.pdf
29. G.E. Roat - http://materia.fisica.unimi.it/manini/theses/roat.pdf
28. M. Isella - http://materia.fisica.unimi.it/manini/theses/isella.pdf
27. S.V. Paronuzzi Ticco - http://materia.fisica.unimi.it/manini/theses/paronuzzi.pdf
26. P. Comensoli - http://materia.fisica.unimi.it/manini/theses/comensoli.pdf
25. G. Pungillo - http://materia.fisica.unimi.it/manini/theses/pungillo.pdf
24. M. Manzoni - http://materia.fisica.unimi.it/manini/theses/manzoni.pdf
23. R. Meloni - http://materia.fisica.unimi.it/manini/theses/meloni.pdf
22. M. Zecchin - http://materia.fisica.unimi.it/manini/theses/zecchin.pdf
21. F. Brivio - http://materia.fisica.unimi.it/manini/theses/brivio.pdf
20. P. Ponzellini - http://materia.fisica.unimi.it/manini/theses/ponzellini.pdf
19. G. Pagano - http://materia.fisica.unimi.it/manini/theses/pagano.pdf
18. A. Paroni - http://materia.fisica.unimi.it/manini/theses/paroni.pdf
17. E. Diato - http://materia.fisica.unimi.it/manini/theses/diato.pdf
16. N. Ferri - http://materia.fisica.unimi.it/manini/theses/ferri.pdf
15. N.S. Falzoi - http://materia.fisica.unimi.it/manini/theses/falzoi.pdf
14. B. Van Hattem - http://materia.fisica.unimi.it/manini/theses/van_hattem.pdf
13. E. Distante - http://materia.fisica.unimi.it/manini/theses/distante.pdf
12. C. Negri - http://materia.fisica.unimi.it/manini/theses/negri.pdf
11. I.E. Castelli - http://materia.fisica.unimi.it/manini/theses/castelli.pdf
10. F. Caruso - http://materia.fisica.unimi.it/manini/theses/caruso.pdf
9. M. Cesaratto - http://materia.fisica.unimi.it/manini/theses/cesaratto.pdf
8. M. Korbman - http://materia.fisica.unimi.it/manini/theses/korbman.pdf
7. F. Bonelli - http://materia.fisica.unimi.it/manini/theses/bonelli.pdf
6. A. Bugada - http://materia.fisica.unimi.it/manini/theses/bugada.pdf
5. G. Diana - http://materia.fisica.unimi.it/manini/theses/diana.pdf
4. E. Cinquanta - http://materia.fisica.unimi.it/manini/theses/cinquanta.pdf
3. G. Divitini - http://materia.fisica.unimi.it/manini/theses/divitini.pdf
2. G. La Spada - http://materia.fisica.unimi.it/manini/theses/la_spada.pdf
1. F. Dalla Piazza - http://materia.fisica.unimi.it/manini/theses/dalla_piazza.pdf

Courses Taught:

2011-current: Solid-State Physics 1 (Fisica dei Solidi 1, 42 hours/year, 48 hours until 2017) for the Master's degree in Physics - University of Milano.

2011-current: Structure of Matter 1 (Struttura della Materia 1, 80 hours/year) for the Bachelor's degree in Physics - University of Milano. Lecture notes and proposed exercises are available at `http://materia.fisica.unimi.it/manini/dida/Struttura_della_Materia_1.html` .

2003-current: Quantum Theory of Matter for the Physics, Astrophysics and Applied Physics PhD School - University of Milano (10 hours/year).

2010: Surface Physics 1 (Fisica delle Superfici 1, 48 hours/year) for the Master's degree in Physics - University of Milano.

2008-2009: Physical methods applied to biotechnology (Metodi fisici applicati alle biotecnologie, 24 hours/year) for the Master's degree in Biotechnology - University of Milano. Detailed program and slides are available at `http://materia.fisica.unimi.it/manini/dida/Metodi_Fisici_Biotecnologie.html` .

2003-2009: Structure of Matter 1 (Struttura della Materia 1, 60 hours/year) for the Bachelor's degree in Physics - University of Milano. With the adaptation of the Milan-University higher-education programs to the Bologna process, NM was charged to plan the contents of this first-cycle new course. The conceptual conversion of the old Structure of Matter into the current Physics of Condensed Matter is the result of that evolution. NM's lecture notes were published with Springer.

2002-2010: appointed teacher of Vibronic effects in molecules and molecular solids at SISSA, Trieste.

2001-2003: practicals for Structure of Matter (Struttura della Materia, 30 hours/year) for the pre-Bologna-style 4-years M.Sc. diploma (Laurea quadriennale) in Physics - University of Milano.

1994, 1995, 2000: trainer of the Italian Physics Olympiads Team.

1991-1992: math and physics at high-school level (students of age 13-19) in Trento and Rovereto, Italy (16 weeks - 18 hours/week).

Administrative Experience

2008: member of the committee for the selection of the Director of the European Theoretical Spectroscopy Facility.

2007-2010: member of the teaching executive board (Giunta) for the Physics Department at University of Milano.

2006-current: proposer and local contact of the Physics and Chemistry of Advanced Materials (PCAM) European Doctorate network.

2006-2008: member of the Faculty-of-Science executive board (Giunta) of University of Milano.

2003-2011 and 2013-current: member of the Board of the PhD School in Physics, Astrophysics and Applied Physics of the University of Milano. In years 2003-2007 NM was in charge of the Board's Scientific Secretariat.

1998-current: Referee of approximately 90 manuscripts for the following journals: Beilstein J. Nanotechnol., Chem. Phys. Lett., Commun. Theor. Phys., Comput. Theor. Chem., Eur. Phys. J. B, Europhys Lett., J. Mol. Struct., J. Nanopart. Res., J. Phys. B, J. Phys. Chem. Solids, J. Supercond. Novel Magnet., Model. Simul. Mater. Sci. Eng., Nat. Commun., Philos. Mag., Phys. Chem. Chem. Phys., Phys. Lett. A, Phys. Rev. A + B + E + Lett., Phys. Status Solidi B, Tribol. Lett., and Rep. Math. Phys.

2002-current: Referee of research projects for: the German Research Foundation (DFG); the Italian Ministry of Research (MIUR); the Italian Supercomputing Center CINECA; Leiden Univ. & Erasmus Univ. Rotterdam & Delft Univ. Technol. (Leading Fellows Postdoc Programme).

Organization of Conferences

2016-2017: co-organizer of the Joint ICTP-COST-MODPHYSFRICT Conference on 'Trends in Nanotribology 2017' (TiN17), Trieste, June 26-30, 2017 - `http://indico.ictp.it/event/7971/` .

2013-2015: co-organizer of the Condensed Matter Highlights workshop series in Milan, `https://sites.google.com/site/somunimi/`

2010-2011: co-organizer of the Joint ICTP/FANAS Conference on Trends in Nanotribology, Trieste, Sep. 12-16, 2011 - `http://indico.ictp.it/event/a10163/` , and co-editor of the proceedings Tribology Letters vol. 48/1 `http://link.springer.com/journal/11249/48/1/` .

2008-2009: co-organizer of the Joint ICTP/FANAS Conference on Trends in Nanotribology, Trieste, Oct. 19-24, 2009 - `http://indico.ictp.it/event/a08185/` , and co-editor of the proceedings Tribology Letters vol. 39/3 `http://link.springer.com/journal/11249/39/3/` .

2005-2006: co-organizer of the International Symposium on the Jahn-Teller Effects: Novel Aspects in Orbital Physics and Vibronic Dynamics of Molecules and Crystals, Trieste, Aug. 28-31, 2006 - `http://indico.ictp.it/event/a05220` , and co-editor of the proceedings J. Mol. Struct. vol. 838 `http://www.sciencedirect.com/science/journal/00222860/838` .

2003-2004: co-organizer of the Mini-Colloquium Theory of Optical and Dielectric Properties of Condensed Matter at the 20th General Conference Condensed Matter Division European Physical Society, Prague, Czech Republic, July 19-23, 2004.

2003-2004: co-organizer of the Fullerene - Solid State Symposium, at the 205th Meeting of The Electrochemical Society, San Antonio TX, USA, May 9-13, 2004.

Languages

Italian: Mother tongue; English: CEFR-C2; French: Fluent.

Computing Skills

Current OSs: linux, android, MS-Windows; past OS experience: aix, hp-ux, MS-dos, Mac

OS, vms.

Programming: c++, python, perl, fortran, Mathematica, unix shell/sed/awk, html, usage of standard numerical libraries (lapack, Numerical Recipes) and parallel-computer environments (mpi).

Editors/utilities: emacs, latex, xmgrace, gimp, rawtherapee, xfig, libreoffice, google drive.

Publications in Peer-Reviewed Journals

95. GeV_n complexes for silicon-based room-temperature single-atom nanoelectronics, S. Achilli, N. Manini, G. Onida, T. Shinada, T. Tanii, and E. Prati, submitted to Sci. Rep.

94. Recent highlights in nanoscale and mesoscale friction, A. Vanossi, D. Dietzel, A. Schirmeisen, E. Meyer, R. Pawlak, T. Glatzel, M. Kisiel, S. Kawai, and N. Manini, submitted to Beilstein J. Nanotechnol.

93. Directional and Angular Locking in the Driven Motion of Au Islands on MoS2, F. Trillitzsch, R. Guerra, A. Janas, N. Manini, F. Krok, and E. Gnecco, submitted to Phys. Rev. Lett.

92. 'Planetary' silver nanoparticles held in orbit by electric charge, S. Marom, R. Modi, M. Plesser, N. Manini, and M. Di Vece, submitted to Appl. Phys. Lett.

91. Sliding states of a soft-colloid cluster crystal: Cluster versus single-particle hopping, M. Rossini, L. Consonni, A. Stenco, L. Reatto, and N. Manini, Phys. Rev. E **97**, 052614 (2018).

90. Experimental observation of the Aubry transition in two-dimensional colloidal monolayers, T. Brazda, A. Silva, N. Manini, A. Vanossi, R. Guerra, E. Tosatti, and C. Bechinger Phys. Rev. X **8**, 011050 (2018).

89. Analytic understanding and control of dynamical friction, E. Panizon, G.E. Santoro, E. Tosatti, G. Riva, and N. Manini, Phys. Rev. B **97**, 104104 (2018).

88. Lifted graphene nanoribbons on gold: from smooth sliding to multiple stick-slip regimes, L. Gigli, N. Manini, E. Tosatti, R. Guerra, and A. Vanossi, Nanoscale **10**, 2073 (2018).

87. Protomene: A new carbon allotrope, F. Delodovici, N. Manini, R.S. Wittman, D.S. Choi, M. Al Fahim, and L.A. Burchfield, Carbon **126**, 574 (2018).

86. Atomic scale front propagation at the onset of frictional sliding, S. Bonfanti, A. Taloni, C. Negri, A.L. Sellerio, N. Manini, and S. Zapperi, J. Phys. Chem. Lett. **8**, 5438 (2017).

85. Velocity dependence of sliding friction on a crystalline surface, C. Apostoli, G. Giusti, J. Ciccoianni, G. Riva, R. Capozza, R. L. Woulaché, A. Vanossi, E. Panizon, and N. Manini, Beilstein J. Nanotechnol. **8**, 2186 (2017).

84. Graphene nanoribbons on gold: Understanding superlubricity and edge effects, L. Gigli, N. Manini, A. Benassi, E. Tosatti, A. Vanossi, and R. Guerra, 2D Mater. **4**, 045003 (2017).

83. Finite-temperature phase diagram and critical point of the Aubry pinned-sliding transition in a two-dimensional monolayer, D. Mandelli, A. Vanossi, N. Manini, and E. Tosatti, Phys. Rev. B **95**, 245403 (2017).

82. Current trends in the physics of nanoscale friction, N. Manini, G. Mistura, G. Paolicelli, E. Tosatti, and A. Vanossi, Adv. Phys. X **2**, 569 (2017).

81. Novamene: A new class of carbon allotropes, L.A. Burchfield, M. Al Fahim, R.S. Wittman, F. Delodovici, and N. Manini, Heliyon **3**, e00242 (2017).

80. Friction and Nonlinear Dynamics, N. Manini, O.M. Braun, E. Tosatti, R. Guerra, and A. Vanossi, J. Phys.: Condens. Matter **28**, 293001 (2016).

79. Subharmonic Shapiro steps of sliding colloidal monolayers in optical lattices, S.V. Paronuzzi Ticco, G. Fornasier, N. Manini, G.E. Santoro, E. Tosatti, and A. Vanossi, J. Phys.: Condens. Matter **28**, 134006 (2016).

78. Superlubric-Pinned Transition in Sliding Incommensurate Colloidal Monolayers, D. Mandelli, A. Vanossi, M. Invernizzi, S. Paronuzzi, N. Manini, and E. Tosatti, Phys. Rev. B **92**, 134306 (2015).

77. Friction Boosted by Equilibrium Misalignment of Incommensurate Two-Dimensional Colloid Monolayers, D. Mandelli, A. Vanossi, N. Manini, E. Tosatti, Phys. Rev. Lett. **114**, 108302 (2015).

76. Oxidation of carbynes: signatures in infrared spectra, E. Cinquanta, N. Manini, L. Ravagnan, L. Caramella, G. Onida, P. Milani, and P. Rudolf, J. Chem. Phys. **140**, 244708 (2014).

75. Thermal formation of carbynes, T.M. Mazzolari and N. Manini, J. Phys.: Condens. Matter **26**, 215302 (2014).

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Conferences, Workshops, and Proceedings Papers

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- Roto-vibrational spectroscopy of quadriatomic molecules: an algebraic approach, S. Oss, N. Manini, and L. Viola published in Proceedings of SASP 92, edited by D. Bassi, M. Scotoni, and P. Tosi, p. 2.120.

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  SASP - Symposium on Atomic and Surface Physics, Pampeago, Italy, Jan. 19-25, 1992
- XII Congresso Fisica Teorica e Struttura della Materia, Fai della Paganella (Trento), Italy, March 31 - April 3, 1993
- Electron-vibron interactions and Berry phases in Charged Fullerene,
  presented at
  1994 March Meeting of the American Physical Society, Pittsburgh, PA, U.S.A., March 21-25, 1994
- Berry phases and Superconductivity in ionic C_{60}-based materials,
  poster presented at
  Congresso nazionale di fisica della materia, Brescia, Italy, June 13-16, 1994
- Electron-Vibron Interaction and Berry Phases in Charged Fullerene, and Enhanced Electron Pairing in a Lattice of Berry Phase Molecules, posters presented at International Conference on Magnetic Correlations, Metal-Insulator-Transitions and Superconductivity in Novel Materials, Wuerzburg, Germany, Sept. 26-30, 1994
- VII International Workshop on Computational Condensed Matter Physics: Total Energy and Force Methods, I.C.T.P., Trieste, Italy, Jan. 11-15, 1995
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  invited talk at
  187th Meeting of The Electrochemical Society, Reno, NV, U.S.A., May 21-26, 1995
- Adriatico Research Conference - NATO Advanced Research Workshop on Physics of Sliding Friction, I.C.T.P., Trieste, Italy, June 20-23, 1995
- Surprises in the Orbital Magnetic Moment and g-Factor of the Dynamic Jahn-Teller Fullerene Ion,
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- Enhanced Electron Pairing in a Lattice of Berry Phase Molecules,
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- Highlights in X-Ray Synchrotron Radiation Research, Grenoble, France, Nov. 17-20, 1997
- Fullerene ions: many-modes dynamic Jahn-Teller systems at strong coupling,
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- Berry Phase and the Symmetry of the Vibronic Ground State in Dynamical Jahn-Teller Systems, N. Manini and P. De Los Rios published in Proceedings of the XIV International Symposium on Electron-Phonon Dynamics and Jahn-Teller Effect, Erice, Italy 7-13 July 1998, edited by G. Bevilacqua, L. Martinelli, and N. Terzi (World Scientific, Singapore, 1999), p. 37.

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  XIV International Symposium on Electron-Phonon Dynamics and Jahn-Teller Effect, Erice, Italy 7-13 July 1998
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- Which ground state for C_{60}^{+}?,
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- Electron-vibration couplings in positive C_{60}^{+} ions,
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- Sensitivity of the Mott transition to noncubic splitting of the orbital degeneracy: Application to $NH_3\,K_3C_{60}$,
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- Hund Rule Magnetism in C_{60} Ions and Calculation of the Photoemission Spectrum of Gas-Phase C_{60}, posters presented at INFMeeting - National Conference on Physics of Matter, Genova, Italy, June 23-25, 2003
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- Exact velocity quantization phenomena in the lubricated friction of classic periodic sliders,
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  XCII Congresso nazionale - Società Italiana di Fisica, Torino, Italy, Sep. 18-23, 2006
- Static friction on the fly: velocity pinning transitions of lubricants in motion,
  poster presented at
  Statphys 23, Genova, Italy, July 9-13, 2007
- Static friction on the fly: velocity pinning transitions of lubricants in motion,
  invited talk at
  Vibrations at Surfaces 12, Erice, Italy, July 20-26, 2007
- 12th Nanoquanta Workshop on Electronic Excitations, Aussois, France, Sep. 18-22, 2007
- Quantized lubricant velocity in a bi-dimensional sliding model,
  invited talk at
  CECAM workshop: Modelling and simulations of friction at the nanoscale: from understanding to control, Lyon, France, Nov. 08-10, 2007
- The role of lubricant molecular shape in microscopic friction,
  invited talk at
  International School of Solid State Physics - 44th workshop: Dynamical Phenomena in low-Dimensional Systems, Erice, Italy, July 20-26, 2008
- Hund's Rule Magnetism in C_{60} Ions?,
  poster presented at
  XIX International Symposium on the Jahn-Teller Effect: Vibronic Interactions and Orbital Physics in Molecules and in the Condensed Phase, Heidelberg, Germany, Aug. 25-29, 2008
- 13th Nanoquanta-ETSF Workshop on Electronic Excitations, Pugnochiuso, Italy, Sep. 22-27, 2008
- The role of lubricant molecular shape in microscopic friction,
  presented at
  Physics of Tribology - Understanding Friction and Wear processes in technical systems, Bad Honnef, Germany, March 22-25, 2009
- Computer simulation of 2D mesophases of 1,3-dialkylimidazolium ionic liquid films,
  presented at
  CECAM workshop: Computational models of room temperature ionic liquids, Dublin, Ireland, April 6-8, 2009
- Theory of AFM frictional dissipation at surface Moire patterns,
  presented at
  2nd South-East European Conference on Computational Mechanics (SEECCM 2009), Rhodes, Greece, June 22-24, 2009
- Theory of AFM frictional dissipation at surface Moire patterns,
  presented at

ECOSS 26, European Conference on Surface Science, Parma, Italy, Aug. 30 - Sep. 04, 2009

- Joint ICTP/FANAS Conference on Trends in Nanotribology, Trieste, Italy, Oct. 19-24, 2009
- Tribology of the lubricant quantized sliding state,
  invited talk at
  ACAM- SFI SimBioMa-ESF Workshop: Molecular Friction, Dublin, Ireland, Dec. 14-16, 2009
- Theory of AFM frictional dissipation at surface Moire patterns,
  presented at
  Transalp'Nano 2010, The Second Transalpine Conference on Nanoscience and Nanotechnologies, Como, Italy, June 3 - 5, 2010
- Ab Initio Long-Wavelength Properties of Metallic Systems: Iron and Magnesium, M. Cazzaniga, L. Caramella, N. Manini, and G. Onida, published in EPIOPTICS-11 - Proceedings of the 49th course of the International School of Solid State Physics (Erice, Italy, July 2010), edited by A. Crescenti, series editor: A. Zichichi (Word Scientific, Singapore, 2012), p. 30.
- Theory of AFM frictional dissipation at surface Moire patterns,
  presented at
  ECOSS 27, European Conference on Surface Science, Groningen, The Netherlands, Aug. 29 - Sept. 3, 2010
- Theory of AFM frictional dissipation at surface Moire patterns,
  poster presented at
  IOM-CNR Workshop, Trieste, Italy, Sep. 30 - Oct. 1, 2010
- Molecular Photoemission from C_{60}: The Clear Spectral Fingerprint of Jahn-Teller Effect,
  invited talk at
  Fullerene Silver Anniversary Symposium, FSAS-2010, Hersonissos, Crete, Greece, Oct. 4-10, 2010
- Comment to "Imaging the atomic orbitals of carbon atomic chains with field-emission electron microscopy",
  poster presented at
  15th International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods, I.C.T.P., Trieste, Italy, Jan. 13-15, 2011
- Theory of AFM frictional dissipation at surface Moire patterns,
  presented at
  International Nanotribology Forum: The Hoi An Discussions, Hoi An, Vietnam, May 23-27, 2011
- Electronic and mechanical properties of sp carbon atomic nanowires,
  presented at
  16th ETSF Workshop on Electronic Excitations - Bridging theory and experiment, Torino, Italy, Sept. 27-30, 2011
- 16th International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods, I.C.T.P., Trieste, Italy, Jan. 10-12, 2013

- Static and dynamic friction in sliding colloidal monolayers,
  presented at
  FisMat2013 - Italian National Conference on Condensed Matter Physics, Milano, Italy, Sept. 09-13, 2013
- Solitons and frictional phenomena in sliding colloidal monolayers,
  invited talk at
  XCIX Congresso Nazionale Società Italiana di Fisica, Trieste, Italy, Sep. 23-27, 2013
- Electronic and mechanical properties of sp carbon atomic nanowires,
  invited talk at
  International Workshop on From carbon nanotubes to graphene: the key materials of the future? Brescia, Italy, Sep. 30-Oct. 1, 2013
- Playing tribology with a layer of colloidal particles: depinning, solitons, epitaxy, and more,
  invited talk at
  Conference on Friction and Energy Dissipation in Man-made and Biological Systems, Trieste, Italy, Nov. 5-8, 2013
- sp chains and sp2 carbon: spectroscopy and dynamics properties,
  invited talk at
  Conference on Frontiers of Condensed Matter Physics, Trieste, Italy, Nov. 11-15, 2013
- Dagli atomi al cervello, Politecnico di Milano, Italy, Jan 27, 2014
- Soliton dynamics in sliding friction,
  poster presented at
  The First European Workshop on Understanding and Controlling Nano and Mesoscale Friction, Can Picafort, Majorca, Spain, May 26-29, 2014
- Soliton dynamics in confined solid lubricants,
  invited talk at
  Confined Systems Under Shear: New Materials & Mechanisms, Oxford, UK, Sept. 1-2, 2014
- Computer simulations for condensed phase systems: From correlated electrons to novel materials, Roma, Italy, May 4-6, 2015
- Exploring friction with colloids: misalignment, local epitaxy, pinning-superlubricity, synchronization, and more,
  invited talk at
  Novel Developments in Classical and Quantum Systems, Padova, Italy, June 4-5, 2015
- Exploring friction with colloids: misalignment, local epitaxy, pinning-superlubricity, synchronization, and more,
  invited talk at
  The International Conference on Understanding and Controlling Nano and Mesoscale Friction, Istanbul, Turkey, June 22-26, 2015
- Solid-on-solid sliding: superlubricity, dissipation, and the role of lattice mismatch,
  invited talk at
  NanoItaly (www.nanoitaly.it), Rome, Italy, Sep. 21-24, 2015
- International School of Solid State Physics - 68th Course: The Free Electron Laser for Ultrafast Imaging at the Nanoscale Erice, Italy, June 5-10, 2016

- Friction dynamics of a colloidal metasolid,
  poster presented at
  Italian Soft Days 2016, Milano, Italy, June 23-24, 2016
- Dissipation mechanisms in sliding friction,
  poster presented at
  The 2nd European Workshop on Understanding and Controlling Nano and Mesoscale Friction Riga, Latvia, July 4-7, 2016
- Frictional features in graphene nanoribbons deposited on gold,
  poster presented at
  17th Workshop on Dynamical Phenomena at Surfaces (WDPS-17) Milano, Italy, Sept. 19-21, 2016
- Frictional features in graphene nanoribbons deposited on gold,
  invited talk at
  7th European Nanomanipulation Workshop Jena, Germany, Feb. 20-22, 2017
- Joint ICTP-COST-MODPHYSFRICT Conference on 'Trends in Nanotribology 2017' (TiN17), Trieste, Italy, June 26-30, 2017

NOTE: most of NM's publications (including preprints and obscure conference proceedings) are openly accessible at `http://arXiv.org/find/cond-mat/1/au:+manini_n/0/1/0/all/0/1`