

ai fini della pubblicazione  
**Curriculum Vitæ**

*Last update: December 30, 2021*

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### Autocertificazione:

Quanto dichiarato nel Curriculum vitae corrisponde al vero ed e' conforme alle seguenti normative: Legge 04/01/1968 n. 15; Legge 15/05/1997 n. 127 art. 3; D.P.R. 20/10/1998 n. 403.

## Part II – Education

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**PhD** 2001, 27 February - University of Trento, PhD in Physics  
 Advisor: Prof. G. Ruocco  
 Title of the thesis: “Microscopic Dynamics in Simple Liquids and Glasses”

**University graduation** 1997, 13 June - University of L’Aquila, Degree in Physics full marks with honors  
 Advisors: Proff. G. Ruocco and G. Signorelli  
 Title of the thesis: “Study of the vibrational dynamics of amorphous quartz by Inelastic X-ray and light scattering”

**High school** 1991 - Liceo Scientifico “C. Jucci” (Rieti), Diploma full marks

- Spoken languages**
- Italian: native
  - English: fluent
  - French: good comprehension, basic speaking
  - Portuguese: very good comprehension, basic speaking

## Part III – Appointments

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### IIIA Academic Appointments

- Current Positions**
- Since 1/07/2013, Associate Professor, Physics Department University of Roma “La Sapienza”. PI of the FEMTOCOPY LABS.
  - Since 1/04/2017, Affiliated Researcher, Italian Institute of Technology (CLNNS and Graphene Center). Unit PI of the Graphene Flagship (WP8) initiative, Laboratory for Non-Linear Imaging.
- Previous positions**
- 01/09/2008 - 01/07/2013, Fixed Term Assistant/ Professor (ERC-Ideas Starting Grant Holder)  
 5 years position at the Physics Department of the “Sapienza” University of Rome funded by an ERC Starting Grant Project. [See funding section for further details].
  - 14/04/2008 - 01/07/2013, (on leave since 01/09/2008): c/o University of Roma “La Sapienza”.  
 Permanent Researcher position with IPCF-CNR (*Institute for chemical and physical processes, National Council of Research*) on leave.

- 15/07/2004 - 13/04/2008: c/o University of Roma “La Sapienza”.  
Researcher position (Tenure Track contract) with the INFM *Istituto Nazionale di Fisica della Materia* at the Center for Complex Dynamics in Structured Systems (SOFT).
- 04/01/2001 - 14/07/2004: c/o Universities of L’Aquila and Roma “La Sapienza” - ESRF Grenoble.  
Fixed term Researcher position with the INFM *Istituto Nazionale di Fisica della Materia*, on a large scale facilities project (collaboration with the Inelastic Scattering Group in Grenoble)

### **IIIB Other Appointments**

- 2005-2006 ITC Civitavecchia. High school Physics Teacher - on leave (“Professore di ruolo per vincita di concorso in congedo”).

## Part IV – Teaching experience

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7 post-graduate schools  
 42 laurea courses  
 44 Bachelor thesis supervisor (tesi triennali)  
 29 Master thesis supervisor (tesi magistrali)  
 7 Ph.D. thesis supervisor  
**Students opinion based on the OPIS reports:**

Class "Struttura della Materia". Averaged over all the past years which I chaired. Grades 0-4.

	Corso	Media fisica	Media facoltà
Sono complessivamente soddisfatto di come è stato svolto questo insegnamento?	<b>3.35</b>	3.08	3.16
Il docente stimola / motiva l'interesse verso la disciplina?	<b>3.72</b>	3.17	3.21
Il docente espone gli argomenti in modo chiaro?	<b>3.48</b>	3.07	3.19

Class "Photonics". Averaged over all the past years which I chaired. Grades 0-4.

	Corso	Media fisica	Media facoltà
Sono complessivamente soddisfatto di come è stato svolto questo insegnamento?	<b>3.43</b>	3.21	3.16
Il docente stimola / motiva l'interesse verso la disciplina?	<b>3.85</b>	3.35	3.22
Il docente espone gli argomenti in modo chiaro?	<b>3.49</b>	3.23	3.20

- Postgraduate schools**
- Lecturer at the first "Patras University Euroconference on properties of condensed matter probed with x-ray scattering", Patras - Greece (2001).
  - Lecturer at the school/workshop ICTP-INFM "Spectroscopy investigation of the collective dynamics in disordered systems" - Trieste - Italy.(2002)
  - Lecturer at the INFM school for Ph.D. students - Villa Gualino - Torino - I. (2003)

- Lecturer at the VIII SILS school for Ph. D. students - Frascati - I. (2003)
  - Lecturer at the IV SISN school “Inelastic Neutron Scattering from Liquids and Disordered Systems” - Sestri Levante- I. (September 2007)
  - Lecturer at the Summer School “Glass formation, gelation and colloidal aggregation” - Smogen - Sweeden. (August 2008)
  - Lecturer at the International sChool On Nonlinear vibrational Spectro-microscopy (ICONS) - on line - (August 2020)
- Courses**
- AA 98/99 Esperimentazioni di fisica II (lecturer)  
Bachelor of Physics - Università di Trento.
  - AA 98/99 Fisica Generale I (lecturer)  
Bachelor of Engineering - Università di Trento.
  - AA 01/02 Meccanica Classica I (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 01/02 Meccanica Classica II (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 02/03 Meccanica Classica I (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 02/03 Meccanica Classica II (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 03/04 Termodinamica (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 03/04 Meccanica Classica II (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 04/05 Termodinamica (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 04/05 Meccanica Classica I (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 05/06 Termodinamica (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 05/06 Meccanica Classica I (lecturer)  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 05/06 Fisica dei Liquidi I - (Neutron and X-ray diffraction)  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 05/06 Fisica dei Liquidi II - (collective dynamics, Langevin equation)  
Master Degree in Physics - Università di Roma “Sapienza”.

- AA 06/07 Termodinamica  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 06/07 Fisica dei Liquidi I - corso a piu' mani (Diffrazione di Neutroni e raggi X)  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 06/07 Fisica dei Liquidi II - (dinamica collettiva, equazione di langevin)  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 07/08 Termodinamica (lecturer)  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 07/08 Fisica dei Liquidi - (Tecniche spettroscopiche per caratterizzazione strutturale e dinamica dei liquidi.)  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 08/09 Meccanica Classica (lecturer)  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 09/10 Meccanica Classica (lecturer)  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 09/10 Metodi Spettroscopici per la materia condensata. Chair.  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 10/11 Meccanica Classica (lecturer)  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 11/12 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 12/13 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 13/14 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 14/15 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 14/15 Fotonica. Chair.  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 15/16 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".
- AA 15/16 Fotonica. Chair.  
Master Degree in Physics - Università di Roma "Sapienza".
- AA 16/17 Termodinamica. Chair.  
Bachelor of Physics - Università di Roma "Sapienza".

- AA 16/17 Fotonica. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 17/18 Fotonica. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 17/18 Struttura della Materia Chair.  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 18/19 Fotonica. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 18/19 Struttura della Materia Chair.  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 19/20 Photonics. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 19/20 Struttura della Materia Chair.  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 20/21 Photonics. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 20/21 Struttura della Materia Chair.  
Bachelor of Physics - Università di Roma “Sapienza”.
  - AA 21/22 Photonics. Chair.  
Master Degree in Physics - Università di Roma “Sapienza”.
  - AA 21/22 Struttura della Materia Chair.  
Bachelor of Physics - Università di Roma “Sapienza”.
- Bachelor thesis advisor**
- AA 04/05 Chiara Vitelli, “Diffusione depolarizzata della luce in colloidi anisotropi”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 04/05 Daniele Di Pietro, “Diffusione polarizzata della luce in colloidi anisotropi”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 06/07 Marco Manzardo, “Misura di  $c_p/c_v$  con il metodo di Ruchardt”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 06/07 Jacopo Lenkowicz, “Misura sperimentale del rapporto di Landau Placzek mediante il metodo di Ruchardt.”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 07/08 Irene Bongioanni, “Determinazione sperimentale dei diversi regimi di deflusso di sistemi liquidi e granulari”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 07/08 Eleonora Benhar, “Dinamica di rilassamento in vetri calcogenuri studiata mediante spettroscopia di fotocorrelazione”, c.d.l. Physics, Università di Roma “Sapienza”

- AA 08/09 Francesco Peronaci, “Spettroscopia Raman e Simmetrie: il caso del Benzene”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 09/10 Emiliano Milanetti, “Femtosecond Stimulated Raman Scattering”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 10/11 Fabrizio Pittorino, “Assorbimento Transiente in Mioglobina Fotolizzata”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 10/11 Giovanni Rillo, “Risposta Meccanica di un Elastomero Reale”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 11/12 Alice Monteferri, “Generazione di impulsi ultravioletti al femtosecondo mediante amplificazione ottica parametrica”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 11/12 Maria Chiara Braidotti, “Sintesi di impulsi ultravioletti ultracorti mediante generazione di terza armonica.”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 11/12 Giuseppe Fumero, “Scattering Raman Stimolato.”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 12/13 Alessandra Virga, “Dinamica vibrazionale in un glass former fragile mediante spettroscopia Brillouin”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 12/13 Luca Mancino, “Dinamica vibrazionale di film di Indometacina amorfa risolta mediante tecniche pump-probe”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 12/13 Vittorio Richardson, “Imaging Vibrazionale Coerente”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 12/13 Mauro Valeri, “Utilizzo di impulsi ultracorti per scattering Raman stimolato”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 13/14 Lorenzo Monacelli, “Approccio diagrammatico alla Femtosecond Stimulated Raman Spectroscopy”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 13/14 Valeria Venturini, “Microscopia vibrazionale coerente”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 13/14 Francesco Saltarelli, “Analisi statistica di accumulo lipidico in epatociti determinato mediante imaging vibrazionale”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 14/15 Marco Romano, “Convertire luce in energia meccanica mediante motori molecolari”, c.d.l. Physics, Università di Roma “Sapienza”

- AA 14/15 Silvia Franco, “Spettroscopia ultraveloce applicata a materiali nanocompositi di interesse per il fotovoltaico”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 16/17 Federica Zaccagnini, “Il paradosso di Gibbs”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 16/17 Eleonora Polini, “Le Perovskiti per il fotovoltaico”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Pierpaolo Bilotto, “Il momento angolare della luce ed entanglement”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Edoardo D’Andrea, “Impulsive Stimulated Raman Scattering”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Francesco Macchioni, “Laser cooling”, in progress, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Giovanni Cardarelli, “Implementazione numerica del metodo Hartree-Fock”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Francesca Pucci, “Lo spettro Raman del Grafene”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Manuel Loparco, “Il metodo Hartree-Fock”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Enrico di Lucente, “Il momento angolare della luce”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Elisa Posani, “Microscopia vibrazionale label-free”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Andrea Rossetti, “Spettroscopia Raman applicata allo studio del grafene”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 18/19 Nicola Pio Fiorente, “Laser cooling”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 18/19 Amer Omar, “Raffreddamento atomico e condensati Bose-Einstein”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 18/19 Thiago Felicetti, “Teoria quantistica dei cristalli armonici e introduzione ai fononi per lo studio del calore specifico di un solido”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 18/19 Luigi Rosati, “Studio della fotoisomerizzazione del retinale mediante spettroscopia pump-probe”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 19/20 Gabriele Paganelli, “Calcolo analitico dei fattori di Franck-Condon”, c.d.l. Physics, Università di Roma “Sapienza”

- AA 19/20 Jacopo Gaeta, “Effetto Raman: Fenomenologia, spettroscopia e applicazioni”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 19/20 Mattia Pezzoli, “Effetto Raman coerente per microscopia video-rate senza marcatori”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 19/20 Giorgio Minati, “Spettroscopia vibrazionale impulsiva nel dominio del tempo”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 19/20 Virginia Giordo, “Effetto Raman stimolato per microscopia label-free”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Fabrizio Spera, “Laser cooling e trappole magnetoottiche”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Dalila Di Serio, “Dipendenza del segnale di assorbimento e scattering Raman in funzione del displacement molecolare”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Dalila Di Serio, “Dipendenza del segnale di assorbimento e scattering Raman in funzione del displacement molecolare”, c.d.l. Physics, Università di Roma “Sapienza”
- Master thesis supervisor**
- AA 03/04 Andrea Monaco, “Dinamica collettiva nel potassio liquido” c.d.l. Physics, Università di L’Aquila (Co-tutor)
  - AA 04/05 Stefano Cazzato, “Dinamica ad alta frequenza nei metalli liquidi: spettri IXS e teoria idrodinamica molecolare”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 07/08 Ramon Gimenez (Co-tutor), “Inelastic X-ray Scattering in liquid Silicon”, c.d.l. Physics, Università di L’Aquila
  - AA 08/09 Michela Badioli, “Generazione di impulsi tunabili al picosecondo per spettroscopia Raman risolta in tempo”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 09/10 Marco Ferretti, “Realization of a Broadband Picosecond Acoustics setup to study hypersonic propagation in disordered materials”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 09/10 Paola Piredda, “Studio della Propagazione di Onde Ipersonore in Vetri Forti mediante Spettroscopia Fotoacustica”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 11/12 Francesco Pochetti, “Spettroscopia vibrazionale coerente di emoproteine nel dominio dei femtosecondi, c.d.l. Chemistry, Università di Roma “Sapienza”

- AA 11/12 Eliana La Francesca, “Esperimenti di fotoacustica al picosecondo in vetri forti”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 11/12 Eva Pogna, “Broadband Picosecond Photoacoustics in amorphous pharmaceuticals”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 12/13 Giovanni Batignani, “Ultrafast dynamics in photoexcited Neuroglobin revealed by femtosecond stimulated Raman scattering”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 13/14 Nicola Di Palo, “Ultrafast vibrational dynamics in KNiF<sub>3</sub>”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 14/15 Giuseppe Fumero, “Exploring the ultimate resolution limit of Femtosecond Stimulated Raman Scattering”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 14/15 Alessandra Virga, “Coherent Vibrational Spectromicroscopy of Graphene”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 15/16 Lorenzo Monacelli, “Deciphering the non resonant response in impulsive raman spectroscopy”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 15/16 Miles Martinati, “Phonon anomalies in graphene revealed by pulsed raman spectroscopy”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 15/16 Valeria Venturini, “Coherent Raman Imaging of Lipid Droplets Dynamics in live Hepatocytes”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 15/16 Francesco Saltarelli, “Photonic Time Stretch for Stimulated Raman Scattering”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 15/16 Luana Olivieri, “Stimulated Raman Scattering in albumin”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 16/17 Carlo Valensise, “Two photon fluorescence with quantum light”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 16/17 Emanuele Arena, “Ultrafast photoluminescence in nanowires”, c.d.l. Physics, Università di Roma “Sapienza”
- AA 17/18 Gaia Giovannetti, “Broadband Stimulated Raman spectroscopy in electronically resonant biomolecules”, c.d.l. Chemistry, Università di Roma “Sapienza”
- AA 18/19 Giorgio Di Battista, “The out of equilibrium Raman Spectrum of photoexcited TMDC”, c.d.l. Physics, Università di Roma “Sapienza”

- AA 18/19 Elisabetta Colantoni, “CARS imaging of brain and retina tissues for Alzheimer disease”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Carlotta Sansone, “Impulsive vibrational spectroscopy in organic compounds”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Lorenzo Pratolli, “Real-time lipid metabolism in hepatocyte cultures using Coherent Raman Microscopy”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 20/21 Emanuele Mai, “Measuring the phase of Raman susceptibilities by Impulsive Vibrational Spectroscopy reveals excited-state displacements”, c.d.l. Physics, Università di Roma “Sapienza”
  - AA 21/22 Alfredo Tarantino, “Impulsive Vibrational Spectroscopy”, c.d.l. Physics, Università di Roma “Sapienza”, in progress
  - AA 21/22 Paolo Fachin, “Stimulated Raman Spectroscopy”, c.d.l. Physics, Università di Roma “Sapienza”, in progress
  - AA 21/22 Flavio Giuliani, “Fragility of Liquids and non ergodicity factors as function of ageing ”, c.d.l. Physics, Università di Roma “Sapienza”, in progress
- Ph.D. supervisor**
- AA 2008 Stefano Cazzato, “Realization of a new instrument for Dynamic Light Scattering with Infrared Radiation”, Physics, Università di Roma “Sapienza”
  - AA 2008 Giovanna Simeoni, “Dynamics of supercritical fluids: Brillouin and Inelastic X-ray Scattering investigation”, Physics, Università di Roma “Sapienza”
  - AA 2011 Carino Ferrante, “Sub-ps dynamics in heme-proteins studied by Femtosecond Stimulated Raman Scattering”, Physics, Università di Roma “Sapienza”
  - AA 2016 Giovanni Batignani, “Ultrafast processes studied by Femtosecond Stimulated Raman Scattering”, Physics, Physical and Chemical sciences, Università di L’Aquila
  - AA 2018 Alessandra Virga, “Vibrational spectroscopy of highly excited 2D materials”, Physics, Università di Roma “Sapienza”
  - AA 2018 Giuseppe Fumero, “Two-dimensional Raman spectroscopy”, Physics, Università di Roma “Sapienza”
  - AA 2021 Emanuele Mai, “Excited State Non-Linear Raman Spectroscopy”, Physics, Università di Roma “Sapienza”, in progress

## Part V - Service Activities, Memberships, Awards and Honors

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**Reviewer for 45 Intl journals  
Served 8x as Editor  
Organizer of 12 Intl Conferences**

- Journal Reviewer**
- Nature
  - Science
  - Nature Materials
  - Nature Photonics
  - Nature Communications
  - Science Advances
  - Nature Light: Science and Applications
  - Laser and Photonics Reviews
  - Nature Quantum Materials
  - Advances in Physics: X
  - Nanoscale Advances
  - PNAS
  - Physical Review Letters
  - Communications Materials
  - Scientific Reports
  - Journal of Material Chemistry C
  - Nanoscale
  - Analytical Chemistry
  - Physical Review B
  - RSC Advances
  - Physical Review E
  - Journal of Chemical Physics
  - Journal of Biophotonics
  - Journal of Physical Chemistry Letters
  - Europhysics Letters
  - Applied Physics Letters
  - Journal of Rheology
  - Journal of Non-Crystalline Solids

- Acta Materialia
  - High Pressure Research
  - Journal of Applied Polymer Science
  - Nanotechnology
  - Nanoscale
  - Journal of Physical Chemistry
  - Advanced Materials
  - Philosophical Magazine
  - Physica Status Solidi B
  - International Journal of Quantum Chemistry
  - Journal of Photochemistry and Photobiology A: Chemistry
  - International Journal of Thermophysics
  - Physica B
  - Modern Physics Letters B
  - Optics Letters
  - Ultrasonics
  - Journal of Engineering Mathematics
- Referee**
- Referee for the beamtime allocation of the BRISP instrument at the Institute Laue Langevin (ILL)
  - Referee for the National Science Foundation (USA)
  - Referee for the Austrian Science Fund (FWF)
  - Referee (paid) for European Research Council, programme “Synergy” (up to 15 Million Euros/project)
  - Referee for European Research Council, programme “Starting Grant” (up to 2 Million Euros/project)
- Editorial work**
- Chief Editor of “Condensed Matter” - MDPI (section Spectroscopy and Imaging)
  - Guest Editor for a special issue of “Condensed Matter” Journal on “Collective dynamics in Liquids” (2008).
  - Guest Editor for a special issue of “European Physics Journal, Special Topics” devoted to “Advances in Liquid and Amorphous Metals Science” (2011).
  - Guest Editor for EPJ-Web of Conferences: “Proceedings of the 14th Liquid and Amorphous Metals International Conference” (2011).

- Editorial Board of “AASCIT Journal of Chemistry”, American Association of Science and Technology
  - Editorial Board of “The Open Access Journal of Science and Technology” (OAJoST)
  - Editorial Board of “Crystals” - MDPI
  - Editorial Board of “PhysChem” - MDPI
- Academic**
- Contact point for the ERASMUS exchange program in the Physics Department, “Sapienza” University
  - Member of the Physics Department teaching committee for the organization of Bachelor and Master degree courses, “Sapienza” University.
  - Member of the Placement Committee of the Science Faculty, “Sapienza” University.
  - Member of the Placement Committee of the Physics Department, “Sapienza” University.
  - Member of the ERC-advisory committee for the Physics Department, “Sapienza” University.
- Memberships**
- Member of the National Commission for Synchrotron Radiation Activities of the National Research Council (CNR), appointed by the President (2012-2013).
  - International Advisory Board of the LAM (Liquid and Amorphous Metals) conference. Held every three years, this is the reference event for the related community, gathering approximately 400 people).
  - Representative for the “High Resolution and Resonance Scattering” in the User Organization Committee of the European Synchrotron Radiation Facility (ESRF)
  - Member of the Beamline Advisory Team for the construction of the new Inelastic X-ray Beamline at NSLS II
  - International Advisory Board of the International Conference Of Raman Spectroscopy (ICORS). Held every two years, this is the reference event for the related community, gathering above 800 people.
- Conferences organization**
- Programme Committee of the User Information and Discussion Meeting on the European Synchrotron Radiation Facility (ESRF) 2008-2017 Upgrade Programme -Grenoble- (October 2007)
  - Organizing Committee of the 22nd General Conference of the EPS Condensed Matter Division -Rome I- August 2008
  - Organizer of the Workshop “New directions and opportunities in the field of Liquid and Amorphous Materials” -ESRF, Grenoble- 3-5 September 2008

- Organizing Committee of the 6th International Discussion Meeting on Relaxations in Complex Systems -Rome I- August 2009
  - Chairman of the XIV Liquid and Amorphous Metals Conference, University “Sapienza” Rome, (11-16 July 2010). Held every three years, this is the reference event for the related community, gathering approximately 400 people
  - Organizing Committee of the 7th International Discussion Meeting on Relaxations in Complex Systems -Barcellona E- 21-26 July 2013
  - Organizing Committee of the International Meet on Condensed Matter Physics CMPMEET2022 - Munich (Germany)- 23-25 May 2022
  - Organizing Committee of the GEMCMP2022 - Rome (Italy) - 16-18 June 2022
  - Program Chair of the ICORS2022 International Conference on Raman Spectroscopy, Long Beach, USA (14-19 August 2022). Held every two years, this is the reference event for the related community, gathering above 800 people
  - General Chair of the ICORS2024 International Conference on Raman Spectroscopy, University “Sapienza” Rome, (August 2024). Held every two years, this is the reference event for the related community, gathering above 800 people
  - Organizer of the CMD2020GEFES mini-colloquium “Ultra-stable Glasses: New Perspectives for an Old Problem.”
  - Scientific Committee of the “International Meeting of Condensed Matter Physics: CMPMEET2022”
- Other activities**
- Responsible of the research line MD.P02.014 (Soft Matter: Non equilibrium dynamics and complexity) of CNR (National Council of Research) (2007).
  - Workshop “Cultura 2030” 9/10/2018 aula gruppi parlamentari, Camera dei Deputati, invited speaker.
  - Organizer of “Scienza e Tecnologia 2030” 18/02/2018 “Sapienza” University, round table with Giorgio Parisi (ANL), Roberto Cingolani (IIT), Luigi Gallo (Commissione Cultura Camera e Senato), Domenico De Masi, Marco Cattaneo (Le Scienze) and TS.
  - Speaker at “Pint of Science”, science festival 2018, Rome, I.
- Awards**
- Award for the most original Laurea Thesis work by the Istituto Nazionale Fisica della Materia (1997)
  - Alfredo di Braccio prize for the most distinguished laurea work (2000, now awarded by Accademia Nazionale dei Lincei).

- ERC Ideas Grant (1.544.400 Euros) (2007) [see Funding section for details].

## Part VI - Funding Information

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### Attracted funding for over 4.500.000€ (Since 2007, as PI or Co-PI, detailed below)

- FEMTOSCOPY** 1.544.400 € ERC IDEAS Starting Grant project (PI) on Femtosecond Raman Spectroscopy to establish an independent group to study ultrafast dynamics in physics, chemistry and biology. Funded in 2007 for five years. Rated among the 201 projects of the top priority list out of nearly 10000 projects submitted to the very first ERC call.
- IIT@Sapienza** 750.000 € funding in the framework of a partnership between Istituto Italiano di Tecnologia and Università 'Sapienza' Roma. PI for the development of a laboratory devoted to Coherent Vibrational Imaging. (2011-2016).
- PRIN 2017** 735.000 € funding "Learning from natural pigment-protein complexes how to design artificial light-harvesting systems (HARVEST)" (2017). CO-Principal Investigator (responsabile unità, 127.160 €), 3 Years Research project.
- Bando Ricerca Finalizzata** 449.700 € funding "A new ultrasonic method based on Bessel Beam diffraction for non-invasive, focal, ultra-selective, deep and superficial brain stimulation" RF-2019-12368598 (2020). CO-Principal Investigator (90.000 €), 3 Years Research project.
- FILAS CALT** 400.000 €, Combined autofocus laser TIRF. Project funded by Regione Lazio. Co-PI (88.000 €) to develop an advanced microscopy setup based on broadband coherent Stimulated Raman Scattering using a Ti:Sa laser source (2010-2012)
- Graphene Flagship** 160.000 € funding in the framework of CORE2 stage. PI, for the development of a compact graphene-enabled demonstrator for Coherent Vibrational Imaging. (2018-2020).
- Graphene Flagship** 130.000 € funding in the framework of CORE3 stage. PI, for the biomedical applications of a compact graphene-enabled demonstrator for Coherent Vibrational Imaging. (2020-2023).
- lazioinnova2020** 150.000 € funding from Regione Lazio (Lazioinnova) for the development of an integrated Brillouin microscopy facility. Co-PI, (46.000 €) (2021-2022).
- AST Research Projects** 17.000 €, "Quantum Coherence in Photosynthetic Systems". PI, 1 Year Research project to explore the possibility of studying quantum coherence phenomena in photosynthetic systems through vibrational spectroscopy (2010).

- Progetti Ateneo 2011** 10.000 € funding “Synthesis and characterization of supercontinuum sources for bio-spectroscopy “ (2011). PI, 1 Year Research project.
- Progetti Ateneo 2012** 66.000 € funding “Synthesis and characterization of supercontinuum sources for bio-spectroscopy and quantum-optics” (2012). Co-PI, 1 Year Research project.
- Progetti Ateneo 2013** 3.000 € funding “Sviluppo di un setup di Femtosecond Raman Induced Kerr Effect Spectroscopy” (2012). PI, 1 Year Research project.
- Progetti Ateneo 2017** 37.000 € funding “Quantum light spectroscopy: entangling light to disentangle dynamics” (2017). PI, 1 Year Research project.
- Progetti Ateneo 2018** 10.000 € funding “Disentangling charge and energy transfer processes in two-dimensional heterostructures” (2018). PI, 1 Year Research project.
- Progetti Ateneo 2019** 14.500 € funding “Ultrafast energy transfer in photosynthetic materials” (2019). PI, 1 Year Research project.
- Progetti Ateneo 2020** 13.000 € funding “Generation and Coherent Antistokes Raman Scattering (CARS) characterization of a neuromuscular junction for Amyotrophic Lateral Sclerosis in vitro disease modeling” (2020). Co-PI, 1 Year Research project.
- Professori Visitatori Ateneo 2011** 9.000 € funding Prof. C. Elles from Kansas University. 3 months
- Professori Visitatori Ateneo 2014** 9.000 € funding Prof. P. Kukura from Oxford University. 3 months
- Professori Visitatori Ateneo 2016** 5.000 € funding Prof. S. Mukamel from Irvine University. 1 month
- Professori Visitatori Ateneo 2017** 5.000 € funding Prof. S. Berciaud from Strasbourg University. 1 month
- Professori Visitatori Ateneo 2019** 9.000 € funding Prof. K. Dorfmann from East China Normal University. 3 months
- Professori Visitatori Ateneo 2020** 9.000 € funding Prof. M. Pimenta from University Minas Gerais. 3 months
- Professori Visitatori Ateneo 2021** 5.000 € funding Prof. S. Ruhman from Hebrew University of Jerusalem. 1 month
- Conferenze Ateneo 2020** 1850 € funding ICORS Conference (2019)
- CINECA-ISCRA computing grant** “High frequency dynamics in fluid Argon” (2011). Principal Investigator, 1 Year Research project (numerical simulations) in collaboration with the Ukrainian Academy of Science (T. Bryk). 60000 hours CPU Time.
- CINECA parallel computing grant** “Low temperature vibrational properties and viscous flow in glass forming system: a numerical study” (2007). PI, 1 Year Research project (numerical simulations) in collaboration with the University of Sao Paulo (Brazil). 25000 hours CPU Time.

## Part VII – Research Activities

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### Group and Infrastructure development

Since 2007 established two independent research groups active in ultrafast spectroscopy and non-linear imaging, building from scratch 4 laboratory infrastructures and 1 sample preparation room at Sapienza University (Physics Department) and 1 laboratory at the Italian Institute of Technology, for overall  $\approx 200$  squared meters. The labs operate 4 ultrafast laser sources with different pulse duration, energy and repetition rates (cost  $\approx 650\text{k€}$ ), several optical parametric amplifiers (cost  $\approx 150\text{k€}$ ) microscopes (cost  $\approx 150\text{k€}$ ) and spectrometers (cost  $\approx 150\text{k€}$ ). The whole infrastructures have been funded by European initiatives such as the ERC-Starting Grant and the Graphene Flagship. The group gathered over the years 4 senior researchers, 1 technician, 8 post docs, 7 Ph.D. students and 75 Bachelor/Master students.

### Research topics

- Microscopic dynamics in simple liquids** Density fluctuations in monoatomic fluids and binary mixtures, in particular liquid metals. Characterization of the high frequency relaxation processes (THz). Investigation of dynamical regimes at different wavelenghts. The major outcome on this topic is an invited review article (first author) on "The Review of Modern Physics" [23] beside several Phys. Rev. Lett. [12,22,24]). I have also been Chairman of the XIV Liquid and Amorphous Metals Conference (Rome, 11-16 July 2010). Dynamics and Thermodynamics at extreme conditions. Liquid-Liquid phase transitions and acoustic properties in supercritical fluids. In particular, we demonstrated how liquid and gas phases can be identified beyond the critical point. The results recently appeared on Nature Physics [38], Phys. Rev. Lett. [26,30] and Scientific Reports [48].
- Glass transition and aging** Supercooled liquids and structural arrest at the glass transition. Relaxation processes in glass forming liquids. Relation between fragility of liquids and microscopic aspects of the glassy dynamics. The major outcome on this topic is a highly cited paper (first author) appeared on SCIENCE [15]. The connection between viscous flow and vibrational properties has been recently extended below the glass transition temperature to verify the finite temperature dependency of the relaxation time predicted by several glass transition theories. (PNAS paper [60], [80]). Sound velocity and attenuation properties in the GHz range probed in out of equilibrium states, studying the evolution Brillouin spectra after sudden (1 ms) pressure jumps [20].

**High frequency dynamics in glasses** Relaxations and vibrations in glasses. "Anomalies" in the density of states (Boson Peak). Influence of the quenching rate on the dynamical properties. Transverse dynamics and ergodicity breaking. The achievements in this topic include several Phys. Rev. Lett. [16,1,2,6,25,27,28,29], and two Nature Communications [43,49]. We are preparing a manuscript (agreed with the Editor) for the "The Review of Modern Physics" [95]

**Colloidal systems** Slow dynamics in suspensions of nanoparticles, brownian motion in presence of convection studied by visible and infrared photon correlation spectroscopy [30,36].

**Ultrafast Phenomena** Since 2008, my interests turned into time resolved (Pump and Probe) techniques. Funded by an ERC-Starting grant (FEMTOSCOPY), I developed a new laboratory for ultrafast spectroscopy [42]. The main research lines are here: *i)* studies of ultra fast (sub-picosecond) chemical, physical and biological processes by means of Femtosecond Stimulated Raman Scattering, as for instance the case of photolized ligand dynamics in heme proteins (a paper on sub-ps energy flow in Myoglobin recently appeared in Nature Chemistry [71]) or femtomagnetism (a paper on the photoinduced modifications of the exchange energy recently appeared in Nature Photonics [65]). *ii)* Studies of sound propagation in crystalline and amorphous materials by means of novel experimental technique that we introduced: the Broadband Picosecond Acoustics (BPA) [41, cover of the issue], PNAS [60] and Nature Communications [49]. We also have funded ongoing projects to study quantum coherence in photosynthetic systems by means of multidimensional pump-probe spectroscopy, explore new supercontinuum sources for pump-probe spectroscopy.

**2D-materials** Funded by the European Graphene Flagship initiative, I recently addressed the out of equilibrium dynamics of 2D materials in two Nature Communications papers [83, 83]. Specifically, we focus on the electron-phonon coupling and energy vs charge transfer processes in graphene and transition metal dichalcogenides, studied using picosecond laser excitation

**Cells and Tissues** Study of lipid accumulation and metabolism in Hepatocytes, **Imaging** HDAC inhibitors and their role for tumor development. Neurodegenerative diseases, localization of Amyloid-beta Plaques in Alzheimer's Disease Brain. Nanoparticle uptake in Arabidopsis plants for drug delivery and toxicity evaluation. Impact of short-chain fatty acid (2-HIBA) on obesity in C-elegans model. [59,64,69,94]

## Methodologies

- Light scattering** Grating monochromators and Fabry-Perot interferometers: experience with a double grating double pass monochromator SOPRA DMDP2000 and with Sandercock tandem interferometer. Photon correlation: I build up an innovative Infrared Photon correlation setup for the investigation of slow dynamics in highly concentrated colloidal suspensions and glasses in the vicinity of the glass transition temperature. Installed and operative at the GLAS laboratory of the Physics Department of the University "La Sapienza", see for instance the results on lambda-transition in liquid Sulphur appeared on Phys. Rev. Lett. [16, 87]
- Extreme conditions** Experience in construction and handling of extreme condition setup (high temperature furnaces up to 2000 K and high pressure diamond anvil cells for scattering experiments [30,26,38]. Development of an experimental device for the achievement of high pressure jumps ("cruncher") of the order of 3 Kbar in less than 10 ms, coupled with a grating monochromator and a CCD camera. Further details can be found in [20]
- Ultrafast spectroscopy** Since 2008 leading a project for the development of a novel time-resolved pump-probe Raman setup circumventing the time-energy resolution constraint imposed by the Heisenberg principle (see funding section for further details). Non linear Spectroscopies. Optical Parametric Amplification, shaping and characterization of ultrashort light pulses. Ultrafast Oscillators and regenerative amplification. Pump-and-Probe setups for femtosecond and picosecond dynamics. [42,41]
- Coherent Vibrational Imaging** I developed a Coherent Raman Imaging facility at the Italian Institute of Technology (Center for Life NanoScience), to study systems of biological interest [64,59,69,74] and 2D materials (83)). Recently, I entered the Graphene Flagship project (Core2 Stage) receiving financial support to build a compact, graphene-enabled compact CARS demonstrator
- Numerical techniques** Computational Physics: Molecular Dynamics simulations and Instantaneous Normal Modes Analysis. Among the most important achievements on this topic there is a highly cited paper on Lennard-Jones systems published on Phys. Rev. Lett. [4]. Ab initio methods: see 56
- Theory** modeling disordered systems: Self Consistent Born Approximation, see the highly cited Phys. Rev. Lett. [29] and [40,49]. Theory of liquids: generalized collective modes theory [62,39,47]

**Large scale facilities** Very good experience with synchrotron radiation and neutron facilities, achieved through the submission of about 90 proposals/research projects (half of them with allocated beamtime). Deep knowledge of Inelastic X ray scattering techniques with meV resolution (focusing on high frequency dynamics in disordered systems), where I also contributed developing new experimental layouts such as the grazing incidence IXS to measure vibrational density of states in crystalline and amorphous materials [43]. Knowledge of EXAFS and diffraction (structural investigations in supercooled liquid metals) and XPCS (speckles patterns in nanoparticles). Inelastic neutron scattering (density of states and sound propagation in glasses and xerogels and porous media on the nanometers scale). More recently, I also coordinated experiments for studying non-linear processes at Free Electron Lasers [90]. The skills achieved in this field are testified by the participation in several international boards [for further details see "Service activity" section].

## Part VIII - Main Collaborations

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### Based on publications with coauthors from 27 different institutions:

- ESRF-IXS** Inelastic X ray Scattering group (A. Chumakov, G. Monaco, M. Krisch, F. Sette): I joined several experiments at ID16/28 beamlines spending a variable amount of time for each experiment, ranging from a week to few months. [2,3,7,15,23,12,25,26,43,80].
- SPring8** A.Q.R. Baron: Inelastic X ray Scattering in disordered systems [22,16].
- ICE/FORTH** S.N.Yannopoulos: High frequency dynamics and Boson Peak in glasses [16,30,13,27,43,87].
- University of Trento** A. Fontana and G. Viliani: numerical and experimental study of high frequency dynamics in glasses [1,4,6].
- Kazan University** R.M. Yulmetyev: memory functions and Markovian processes in simple liquids [14].
- Chalmers University** L. Borjesson and A.Matic. Transverse dynamics in glasses [27].
- University of L'Aquila** M. Nardone (IXS) and A. Filipponi (structure and dynamics in supercooled metals) [12,18].
- University of Perugia** D. Fioretto (high frequency dynamics in glass forming materials) [22,2,24,30].
- University of Chemnitz** J. Suck (high frequency dynamics in metallic glasses) [25,28].

- Technische Universitat Munchen, Germany** W. Schirmacher (Mode Coupling and Theories of glasses) [29,109,49].
- National Academy of Sciences, Lviv, Ukraine** T. Bryk (Hydrodynamics and theories of liquids) [31,135,34,39].
- LENS, Florence, Italy** F. Gorelli and M. Santoro (Experiments at extreme thermodynamic conditions) [26, 34, 38, 39].
- University of San Paulo, Brazil** M.C. Ribeiro (molecular dynamics simulations of glass forming materials) [32,35].
- Hiroshima University, Japan** M. Inui (experiments on liquid metals at very high temperatures) [33].
- Politecnico Milano, Italy** G. Cerullo (Ultrafast Optics) [42,41,59,60,65].
- Centro de Fisica de Materiales, CSIC-UPV/EHU, San Sebastian** Daniele Cangialosi (fragility and themodynamics in glass forming materials) [37,55].
- Physics Department, University of Barcellona, Barcellona** Javier Rodriguez Viejo (ultrastability of amorphous materials) [52,60].
- Kansas University** C.G. Elles (Ultrafast processes in conjugated molecules) [50,54,70].
- Radboud University Nijmegen, Netherlands** A. Kimel (Femtomagnetism) [65].
- Irvine University, USA** S. Mukamel (Non-linear Spectroscopy) [63,66,117,72,81,84,88].
- Ecole Polytechnique, Paris** M. Vos (Raman spectroscopy in Heme proteins)[71, 76, 89].
- University of L'Aquila** M. Aschi (Excited states dynamics, ab initio simulations)[70].
- University of Cambridge** A. Ferrari at the Cambridge Graphene Center (Non-linear imaging and spectroscopy of Graphene, Graphene-enabled ultrafast laser systems)[75,83].
- IIT-Polimi** Annamaria Petrozza, ultrafast spectroscopy in Perovskites)[77].
- Oxford University** Philip Kukura, multidimensional Raman spectroscopy [88].
- University Pierre and Marie Curie** Mattew Micoulaut, chalcogenide glasses [87].
- University of Madrid** Miguel Angel Ramos, hyperaged glasses [80].

## Part IX - Conferences and Invited Talks

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### More than 90 talks at Intl events

- Invited talks as visiting scientist**
- I1 “Collective Dynamics In Simple Liquids: The Inelastic X-Ray Scattering Point Of View”  
SPring8 - Japan (March 2003).
  - I2 “High Frequency Dynamics in Glasses”  
National Academy of Sciences, Lviv (Ukraine) (December 2006)
  - I3 “Collective dynamics in disordered systems: the Inelastic X-ray Scattering point of view”  
Hiroshima University - Japan (May 2008).
  - I4 “Inelastic X-ray Scattering with meV resolution: frontiers for non crystalline materials science”  
SPring8 - Japan (May 2008).
  - I5 “Femtosecond Stimulated Raman Scattering”  
University of Trento, Trento, Italy (June 2009).
  - I6 “Pump-Probe vibrational spectroscopy with sub ps time resolution”  
Massachusetts Institute of Technology (MIT), Boston, USA (June 2010).
  - I7 “Sub-picosecond snapshots of ligand-hemeprotein interaction taken by Femtosecond Stimulated Raman Spectroscopy”  
Kansas University, USA, (18 March 2011).
  - I8 “Ultrafast Vibrational Spectroscopy in solids and molecular systems”  
Center for Free Electron Lasers, Hamburg, (13 May 2011).
  - I9 “Broadband Picosecond Acoustics”  
Universita’ Autonoma Barcellona, Barcellona, (Luglio 2012).
  - I10 “Femtosecond Stimulated Raman Scattering”  
Universita’ di Brescia, (Ottobre 2012).
  - I11 “Femtosecond Stimulated Raman Scattering”  
Ecole Polytechnique, Paris, (June 2013).
  - I12 “From glass flow to the rupture of a chemical bond: shining light on the ultraslow and on the ultrafast”  
Lectio Magistralis, Trento University, (February 2015).
  - I13 “From glass flow to the rupture of a chemical bond”  
Invited Lecture, L’Aquila University, (16 November 2017).

- I14 “Ultrafast processes in biophysics and condensed matter”  
Invited Lecture, University Roma3, Italy, (27 February 2017).
- I15 “Looking at graphene in the light of ultrafast laser excitation”  
Invited Lecture, Universidade federal Minas Gerais, Belo Horizonte, Brasil, (6 September 2019).
- I16 “Watching ultrafast processes in the light of Femtosecond Stimulated Raman Scattering”  
Invited Lecture, Universidade federal Rio de Janeiro, Rio de Janeiro, Brasil, (10 September 2019).
- I17 “Looking at graphene in the light of ultrafast laser excitation”  
Invited Lecture, Universidade federal Fluminense, Rio de Janeiro, Brasil, (11 September 2019).
- I18 “Snapshots of ultrafast processes in biomolecules and condensed matter: Molecular movies on a table top”  
Invited Lecture, University of Basel, Switzerland, (20 January 2020).
- I19 “Pump-probe coherent Raman spectroscopy”  
Invited Lecture, EPFL, Switzerland, (13 July 2021).
- I20 “Time domain Raman for excited state spectroscopy”  
Invited Lecture, Extreme Light Infrastructure, Prague, Czech Republic (29 October 2021).

**Oral Contributions at  
International  
Conferences**

- O1 “Relaxation dynamics in liquid lithium probed by IXS and MD simulations: a detailed lineshape analysis”  
VII International Workshop “Dynamic of Disordered Systems”, Andalo - Italy (1999).
- O2 “Inelastic X ray scattering in liquid metals”  
High Pressure Science and Technology Conference, AIRAPT 17, Honolulu, Hawaii - USA (1999).
- O3 “High frequency dynamics in liquid metals: experimental (IXS) and numerical (DM-NMA) studies”  
Invited talk at the Workshop on “Structure and dynamics of the liquid and glassy states: X-ray and complementary methods”, Grenoble - France (2000).
- O4 “Microscopic dynamics in simple liquids and glasses”  
VIII International Workshop “Dynamic of Disordered Systems”, Andalo - Italy (2001).

- O5 “Collective dynamics in simple metals: experimental and numerical studies”  
4th International Discussion Meeting on Relaxations in Complex Systems, Heraklion, Crete - Greece (2001).
- O6 “Microscopic Dynamics in Liquid Metals: The IXS scenario”  
XI LAM - Liquid and Amorphous Materials, Yokohama - Japan (2001).
- O7 “High Frequency Dynamics in simple liquids: The Inelastic X-ray Scattering point of view “  
”Novel approaches to the structure and dynamics of liquids: experiments, theories and simulations”, Rhodes - Greece (2002).
- O8 “Experimental evidence for high frequency transverse-like excitations in glasses”  
Round Table “Vibrational excitations in glasses at terahertz frequencies” held at the “III Workshop on Non Equilibrium Phenomena in Supercooled Fluids, Glasses and Amorphous Materials”, Pisa - Italy (2002).
- O9 “Collective dynamics in liquid metals: the IXS point of view”  
IX International Workshop “Dynamic of Disordered Systems”, Andalo - Italy (2003).
- O10 “Fragility of liquids and vibrations in glasses”  
Symposium on the Slow Dynamics 2003, Sendai - Japan (2003).
- O11 “New insights into the collective dynamics of liquid metals”  
XII Liquid and Amorphous Metals conference, Metz - France (2004).
- O12 “Is the fragility of a liquid embedded in the properties of its glass?”  
STATPHYS 22, Bangalore - India (2004).
- O13 “Fragility of liquids or fragility of glasses?”  
Invited lecture at IXS 2004, 5th Conference on Inelastic X ray Scattering, APS Chicago - USA (2004).
- O14 “Microscopic dynamics in liquid metals: doubts and challenges”  
Invited lecture at the First International Workshop on Neutron Brillouin Scattering, Perugia - I, (June 2005)
- O15 “Hard sphere like dynamics in a non hard sphere system”  
6th Liquid Matter Conference, Utrecht - Netherlands (July 2005).

- O16 “Vibrational dynamics and viscous flow in glass forming materials”  
Invited Lecture at the 5th International Discussion Meeting on Relaxations in Complex Systems. New results, Directions and Opportunities, Lille - France (July 2005).
- O17 “Infrared Photon Correlation Spectroscopy: a novel experimental technique for the investigation of dynamics in viscous liquids”  
Invited Lecture at the X International Workshop on Disordered Systems, Molveno - Italy (March 2006).
- O18 “Infrared Photon correlation Spectroscopy: a novel experimental technique for investigation of dynamics in viscous liquids”  
Invited Lecture at the 2nd International Workshop on Dynamics in Viscous Liquids, Mainz - Germany (April 2006).
- O19 “Tackling the  $\lambda$ -transition in Sulphur by InfraRed Photon Correlation Spectroscopy “  
Invited Lecture at the IV Workshop on Non Equilibrium Phenomena in Supercooled Fluids, Glasses and Amorphous Materials - Pisa - Italy (September 2006).
- O20 “Kinetic fragility and vibrational properties in polymers. A thermodynamically assisted reconciliation?”  
Invited Lecture at the VI Workshop on Viscous liquids and the glass transition - Hoelbaek - Denmark (June 2007).
- O21 “Collective Dynamics in Binary Mixtures: Benchmarking Current Theoretical Approaches.”  
XIII Liquid and Amorphous Metals conference, Ekaterinburg - Russia (July 2007).
- O22 “High Frequency Dynamics in disordered Systems with sub-meV resolution”  
Invited lecture at the Workshop for the 2008-2017 ESRF Upgrade Programme, Grenoble - France (October 2007).
- O23 “Do we really need 0.1 meV resolution?”  
Invited Lecture at the Kick off Meeting of the new Inelastic Scattering Beamline at Brookhaven National Labs, Long Island, NY - USA (February 2008).
- O24 “Femtoscscopy: Ultrafast phenomena in Physics, Chemistry and Biology”  
Invited Lecture at the XI International Workshop on Disordered Systems, Andalo - Italy (March 2008).

- O25 “Femtoscapy: Ultrafast phenomena in Physics, Chemistry and Biology”  
Invited Lecture at the SPARX-FEL Symposium on new opportunities for bio-sciences and bio-technologies, University “Tor Vergata”, Rome - Italy (June 2008).
- O26 “FEMTOsecond Stimulated Raman SpectroSCOPY: probing ultrafast transformations in Chemistry, Physics and Biology”  
Invited Lecture at the 8th ECONOS Conference, Rome - Italy (May 2009).
- O27 “Fragility and Non Ergodicity Factor reloaded: the role of secondary relaxations”  
Invited Lecture at the 6IDMRCS, Rome - Italy (September 2009).
- O28 “Raman spectra of heme proteins with femtosecond time resolution”  
Second International Conference on “Transient Chemical Structures in Dense Media” 29 Novembre - 3 Dicembre, Parigi, France (2010).
- O29 “Femtosecond Stimulated Raman Scattering”  
Invited Lecture “Seeded FEL sources and Time-resolved experiments”, Trieste, Italy (Dicembre 2010).
- O30 “Visualizing Coherent Phonon Propagation in the 100 GHz Range: a Broadband Picosecond Acoustics approach”  
CLEO 2011, Munich, 22-26 May (2011).
- O31 “Visualizing Coherent Phonon Propagation in the 100 GHz Range: a Broadband Picosecond Acoustics approach”  
Invited Lecture at “Vibrational energy transport and dissipation”, Rome, 6-7 June (2011).
- O32 “Sub-ps photoinduced dynamics in Heme-proteins by Femtosecond Stimulated Resonance Raman Scattering”  
Invited Lecture at the XIII International Workshop on Disordered Systems, Andalo - Italy (March 2012).
- O33 “Visualizing Coherent Phonon Propagation in the 100 GHz Range: a Broadband Picosecond Acoustics approach”  
CLEO 2012, San Jose, 6-11 Maggio (2012).
- O34 “Sub-ps photoinduced dynamics in Heme-proteins studied by Femtosecond Stimulated Resonance Raman Scattering”  
Invited Lecture at ICORS 2012, Bangalore, 12-17 August (2012).

- O35 “Sub-ps photoinduced dynamics in Heme-proteins studied by Femtosecond Stimulated Resonance Raman Scattering”  
XVII International Conference on “Oxygen Binding and Sensing Proteins, 29 Aug - 1 Sept 2012, Parma (Italy).
- O36 “Visualizing Coherent Phonon Propagation by Broadband Picosecond Acoustics approach”  
Invited Lecture at NANO 2012, Rhodes, 26-31 August (2012)  
- Declined.
- O37 “Inelastic X-ray Scattering in disordered materials”  
Invited Lecture at QENS 2012/WINS 2012, 30 Sep-4 Oct (2012), Nikko (Japan) - Declined.
- O38 “Resonance Raman in the X-FEL perspective”  
International Workshop on “Atomic Physics November 26 - 30, 2012, Dresden (Germany) - Invited Lecture, declined.
- O39 “Broadband Picosecond Acoustics”  
2013 International Congress on Ultrasonics May 2 - 15, 2013, Singapore - Invited.
- O40 “Sub-ps photoinduced dynamics in Heme-proteins studied by Femtosecond Stimulated Resonance Raman Scattering”  
16th International Conference on Time Resolved Vibrational Spectroscopy, 19-24 May 2013, Beppu, Japan.
- O41 “Femtosecond Stimulated Resonance Raman Scattering”  
7th International Conference on Materials for Advanced Technologies, 1-5 July 2013, Singapore.
- O42 “Broadband Picosecond Acoustics in strong glasses”  
7th. International Discussion Meeting on Relaxation in Complex Systems July 21 - 26, 2012, Barcellona (Spain) - Invited.
- O43 “Ultrafast Ligand Dynamics in Heme Proteins”  
7th International Conference on Advanced Vibrational Spectroscopy (ICAVS) August 25-28, 2013, Kobe (Japan) - Invited.
- O44 “Broadband Picosecond Acoustics”  
Italian National Conference on Condensed Matter Physics September 9 - 13, 2013, Milano (Italy) - Invited.
- O45 “New perspectives for Inelastic X-ray Scattering with sub-meV resolution”  
Brookhaven National Laboratories - September 24 - 30, 2013, Brookhaven (USA) - Invited.
- O46 “13th Eurasia Conference in Chemical Sciences”  
Indian Institute of Science, India - December 14-18, 2014, Bangalore (India) - Declined Invited.

- O47 “Lipid accumulation in hepatocytes studied by Coherent Vibrational Imaging”  
EMBO Workshop: “Cellular Imaging of Lipids”, 2-6 June, 2014, Vico Equense, Italy - Invited.
- O48 “Ultrafast dynamics in Heme Proteins”  
Ultrafast Phenomena 2014, 7-11 July, 2014, Okinawa, Japan.
- O49 “How slow does a glass flow?”  
XIV International Workshop on Complex Systems, 22-25 March 2015, Fai della Paganella (Italy).
- O50 “Probing equilibrium glass flow up to exapoise viscosities”  
Viscous liquids and the glass transition. XIII. International workshop, May 28 - May 30, 2015, Holbaek, Denmark. - Invited
- O51 “Optomechanical Characterization of Sub-micron Thick Optical Materials”  
CLEO Europe, 21 - 25 June, 2015, Munich, Germany.
- O52 “Observing lipid droplet storage dynamics in liver cells using CARS microscopy”, From Multiphoton Excitation Microscopy to Optical Nanoscopy and Biophotonics and their applications, 14 - 15 October, 2015, Genova, Italy - Invited.
- O53 “Coherent Brillouin spectroscopy with femtosecond light pulses”, Brillouin And Neutrons: Assessing New Advances, 3 - 5 February, 2016, Rome, Italy - Invited.
- O54 “Probing ultrafast photo-induced dynamics of the exchange energy in a Heisenberg antiferromagnet”, International Conference on Ultrafast Phenomena 2016, 17 - 22 July, 2016, Santa Fe, New Mexico, USA.
- O55 “Snapshots of ultrafast processes in biomolecules and condensed matter in the light of Femtosecond Stimulated Raman Spectroscopy”, XXV International Conference on Raman Spectroscopy (ICORS 2016), 14 - 19 August, 2016, Fortaleza, Ceara’, Brazil - Invited.
- O56 “Snapshots of ultrafast processes in biomolecules and condensed matter in the light of Femtosecond Stimulated Raman Spectroscopy”, Science@XFEL, 5 - 7 September 2016, Trieste, I.
- O57 “Challenging the notion of a single phase beyond the critical point”, EMLG/JMLG Annual Meeting 2016, 11 - 16 September 2016, Crete, Greece - Invited.
- O58 “Challenging the notion of a single phase beyond the critical point”, Advanced Architectures in Photonics 2016, 25 - 29 September 2016, Mykonos, Greece - Invited.

- O59 “Energy landscape and vibrational dynamics: hyperaged geological glasses”, Workshop on Dynamics of Glass-forming Liquids - will theory and experiment ever meet?, 5 - 7 April 2017, Copenhagen, Denmark- Invited.
- O60 “Watching ultrafast processes in the light of Femtosecond Stimulated Raman Scattering”, GISR 2017, 7 - 9 June 2017, Trieste, Italy - Plenary Invited.
- O61 “Raman spectroscopy of graphene in the light of ultrafast laser excitation”, ECONOS2018, 8-11 April 2018, Milan, Italy.
- O62 “The making of molecular movies with femtosecond light flashes”, Light Imaging and Spectroscopy - International Day of Light, 17 May 2018, ENEA, Italy - Invited.
- O63 “The Raman Spectrum of Graphene in the Light of Picosecond Laser Excitation”, XXVI International Conference on Raman Spectroscopy (ICORS 2018), 26 - 31 August, 2018, Jeju island, Korea - Invited.
- O64 “Excited state Impulsive Stimulated Raman Spectroscopy”, Time Resolved Vibrational Spectroscopy (TRVS2021), 13 - 18 June, 2021, On line - Invited.
- O65 “Time-domain Stimulated Resonance Raman goes 2D”, International Conference on Advanced Vibrational Spectroscopy (ICAVS2021), 23 - 26 August, 2021, On line - Invited.
- O66 “Raman spectroscopy of graphene in the light of ultrafast laser excitation”, GEMCMP2022 - Rome (Italy) - 16-18 June 2022 - Keynote Speaker.

**Oral Contributions at  
national workshops**

- O67 “Dinamica ad alta frequenza nella silice vetrosa”  
Convegno Nazionale della Sezione C dell’ INFM, Genova - I (1997).
- O68 “Collective dynamics in liquid Lithium probed by Inelastic X-ray Scattering: a detailed lineshape analysis “  
Convegno annuale SILS (Società Italiana Luce di Sincrotrone), L’Aquila - I (1999).
- O69 “Non dynamic origin of the high frequency acoustic attenuation in glasses”  
Convegno Nazionale della Sezione C dell’ INFM, Perugia - I (2000).
- O70 “Dinamica Lenta in sistemi disordinati e vetri”  
Universita’ Roma “La Sapienza” - I (2003).
- O71 “Nuove opportunità di studio e ricerca all’estero” Invited Contribution to the “Information Day” on the FPVII opportunities organized by Universita’ “Sapienza” Roma

- O72 “Avanzamento Frontiere della Conoscenza” Invited Contribution to the Round Table organized by Universita’ Federico II on the IDEAS ERC-FPVII calls - Napoli (2008).
- O73 “Femtosecond Raman Spectroscopy” Invited 96th Congress of the Italian Physics Society (SIF), 12 Settembre 2017, Trento, Italy - Invited. - Bari (October 2010).
- O74 “Femtosecond Stimulated Raman Scattering”, University of Tor Vergata, Roma, 18 Maggio (2012).
- O75 “Raman spectroscopy of Graphene with picosecond laser excitation”, 103rd Congress of the Italian Physics Society (SIF), 12 Settembre 2017, Trento, Italy - Invited.
- O76 “Looking at graphene in the light of ultrafast laser excitation”, 106th Congress of the Italian Physics Society (SIF)-September 2020 - on line - Invited.

- Poster Contributions** P1 “High frequency dynamics in  $v - SiO_2$ ”  
VII International Workshop “Dynamics of Disordered Systems” , Andalo - I (1997).
- P2 “Inelastic x-ray scattering in vitreous silica”  
INFMeeting, Rimini - I (1998)
- P3 “Microscopic dynamics in liquid lithium”  
X LAM (Liquid and Amorphous Materials), Dortmund - D (1998).
- P4 “High frequency dynamics and boson peak in amorphous silica”  
II Non equilibrium relaxation Phenomena in liquid, supercooled and glassy materials”, Pisa - I (1998).
- P5 “Aging Dynamics in a Real Crunched Glass”,  
Unifying Concepts in Glass Physics - Roma (2002)

## Part X - Full publications list

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### High impact factor journals

**1999**

1. *Elastic constant inhomogeneity and  $Q^2$  dependence of the broadening of the dynamic structure factor in disordered systems.*  
M. Montagna, G. Ruocco, G. Viliani, R. Di Leonardo, R. Dusi, G. Monaco, M. Sampoli, and T. Scopigno.  
PHYSICAL REVIEW LETTERS **83**, 3450 (1999). IF 6.095
2. *Non dynamic origin of the acoustic attenuation at high frequency in glasses.*  
G. Ruocco, F. Sette, R. Di Leonardo, D. Fioretto, M. Lorentzen, M. Krisch, C. Masciovecchio, G. Monaco, F. Pignon, T. Scopigno.  
PHYSICAL REVIEW LETTERS **83**, 5583 (1999). IF 6.095

**2000**

3. *Phonon-like and single particle dynamics in liquid lithium.*  
T. Scopigno, U. Balucani, A. Cunsolo, C. Masciovecchio, G. Ruocco, F. Sette, R. Verbeni.  
EUROPHYSICS LETTERS **50**, 189 (2000). IF 2.228
4. *Relaxation processes in harmonic glasses?*  
G. Ruocco, F. Sette, R. Di Leonardo, G. Monaco, M. Sampoli, T. Scopigno, and G. Viliani.  
PHYSICAL REVIEW LETTERS **84**, 5788 (2000). IF 6.462
5. *Density fluctuation in molten lithium: inelastic X-ray scattering study.*  
T. Scopigno, U. Balucani, G. Ruocco, and F. Sette.  
JOURNAL OF PHYSICS: CONDENSED MATTER **12**, 8009 (2000). IF 1.608
6. *Nature of the short wavelength excitations in vitreous silica: X-Ray Brillouin scattering study.*  
O. Pilla, A. Cunsolo, A. Fontana, C. Masciovecchio, G. Monaco, M. Montagna, G. Ruocco, T. Scopigno, F. Sette.  
PHYSICAL REVIEW LETTERS **85**, 2136 (2000). IF 6.462
7. *Evidence of two viscous relaxations processes in the collective dynamics of liquid lithium.*  
T. Scopigno, U. Balucani, G. Ruocco, F. Sette.  
PHYSICAL REVIEW LETTERS **85**, 4076 (2000). IF 6.462

**2001**

8. *Collective dynamics of liquid Aluminum probed by Inelastic X-ray Scattering.*  
T. Scopigno, U. Balucani, G. Ruocco, F. Sette.  
PHYSICAL REVIEW E **63**, 011210 (2001). IF 2.235
9. *Observation of Umklapp processes in disordered materials.*  
T. Scopigno, M. D'Astuto, M. Krisch, G. Ruocco, F. Sette.  
PHYSICAL REVIEW B **64**, 012301 (2001). IF 3.070

#### 2002

10. *Inelastic x-ray scattering study of the collective dynamics in liquid sodium.*  
T. Scopigno, U. Balucani, G. Ruocco, F. Sette.  
PHYSICAL REVIEW E **65**, 031205 (2002). IF 2.397
11. *Evidence of short time dynamical correlations in simple liquids.*  
T. Scopigno, G. Ruocco, F. Sette, G. Viliani.  
PHYSICAL REVIEW E **66**, 031205 (2002). IF 2.397
12. *High frequency acoustic modes in liquid Gallium at the melting point.*  
T. Scopigno, A. Filipponi, M. Krisch, G. Monaco, G. Ruocco, F. Sette.  
PHYSICAL REVIEW LETTERS **89**, 255506 (2002). IF 7.323

#### 2003

13. *High frequency acoustic modes in vitreous Beryllium Fluoride probed by inelastic x-ray scattering.*  
T. Scopigno, S.N. Yannopoulos, D.Th. Kastrissios, G. Monaco, E. Pontecorvo, G. Ruocco, and F. Sette.  
JOURNAL OF CHEMICAL PHYSICS **118**, 530301 (2003). IF 2.950
14. *New evidence for the idea of time-scale invariance of relaxation processes in simple liquids: the case of molten sodium.*  
R. M. Yulmetyev, A. V. Mokshin, T. Scopigno, P. Hanggi.  
JOURNAL OF PHYSICS: CONDENSED MATTER **15**, 2235 (2003). IF 1.757
15. *Is the fragility of a liquid embedded in the properties of its glass?.*  
T. Scopigno, G. Ruocco, F. Sette and G. Monaco.  
SCIENCE **302** 849, (2003). IF 29.781

#### 2004

16. *High frequency dynamics in a monatomic glass*  
T. Scopigno, R. Di Leonardo, G. Ruocco, A.Q.R. Baron, S. Tsutsui, F. Bossard and S.N. Yannopoulos  
PHYSICAL REVIEW LETTERS **92**, 025503, (2004). IF 7.218

17. *Evidence of anomalous dispersion of the generalized sound velocity in glasses*  
B. Ruzicka, T. Scopigno, S. Caponi, A. Fontana, O. Pilla, P. Giura, G. Monaco, E. Pontecorvo, G. Ruocco, and F. Sette.  
PHYSICAL REVIEW B: RAPID COMMUNICATIONS **69**, 100201, (2004). IF 3.075
18. *Collective dynamics in molten potassium: An inelastic x-ray scattering study*  
A. Monaco, T. Scopigno, P. Benassi, A. Giugni, G. Monaco, M. Nardone, G. Ruocco, and M. Sampoli  
JOURNAL OF CHEMICAL PHYSICS **120**, 8089, (2004). IF 3.105
19. *Landscapes and Fragilities*  
G. Ruocco, F. Sciortino, F. Zamponi, C. De Michele and T. Scopigno.  
JOURNAL OF CHEMICAL PHYSICS **120**, 10666, (2004) IF 3.105
20. *Spectroscopic cell for fast pressure jumps across the glass transition line*  
R. Di Leonardo, G. Ruocco, T. Scopigno and U. Buontempo.  
REVIEW OF SCIENTIFIC INSTRUMENTS, **75**, 2631 (2004). IF 1.226
21. *Comment on "Collective dynamics in liquid lithium, sodium and aluminum"*  
T. Scopigno and G. Ruocco.  
PHYSICAL REVIEW E, **70**, 013201, (2004). IF 2.352

**2005**

22. *Hard sphere dynamics in non-hard sphere liquids*  
T. Scopigno, R. Di Leonardo, L. Comez, A.Q.R. Baron, D. Fioretto and G. Ruocco  
PHYSICAL REVIEW LETTERS **94**, 155301, (2005). IF 7.489
23. *Microscopic dynamics in liquid metals: The experimental point of view*  
T. Scopigno, G. Ruocco and F. Sette  
THE REVIEW OF MODERN PHYSICS **77**, 881 (2005). IF 30.254
24. *Reply to the Comment on "Hard sphere dynamics in non-hard sphere liquids" by. F. Bermejo et al.*  
T. Scopigno, R. Di Leonardo, L. Comez, A.Q.R. Baron, D. Fioretto, G. Ruocco and W. Montfrooij  
PHYSICAL REVIEW LETTERS **95**, 269602, (2005). IF 7.489

**2006**

25. *High frequency dynamics in metallic glasses.*  
T. Scopigno, J.-B. Suck, R. Angelini, F. Albergamo, G. Ruocco.  
PHYSICAL REVIEW LETTERS **96**, 135501, (2006). IF 7.072
26. *Liquid-like behavior of supercritical fluids.*  
F. Gorelli, M. Santoro, T. Scopigno, M. Krisch and G. Ruocco.  
PHYSICAL REVIEW LETTERS **97**, 245702, (2006). IF 7.072

**2007**

27. *Comment on: Glass-specific behaviour in the damping of acoustic vibrations.*  
G. Ruocco, A. Matic, T. Scopigno and S.N. Yannopoulos.  
PHYSICAL REVIEW LETTERS **98**, 079601, (2007). IF 6.944
28. *Reply to the Comment on: High frequency dynamics in metallic glasses.*  
T. Scopigno, R. Angelini, G. Ruocco and J.-B. Suck  
PHYSICAL REVIEW LETTERS **98**, 079604, (2007). IF 6.944
29. *Acoustic attenuation in glasses and its relation with the Boson Peak.*  
W. Schirmacher, G. Ruocco and T. Scopigno.  
PHYSICAL REVIEW LETTERS **98**, 025501, (2007). IF 6.944
30. *Origin of the  $\lambda$  Transition in Liquid Sulphur.*  
T. Scopigno, S.N. Yannopoulos, F. Scarponi, K.S. Andrikopoulos, D. Fioretto and G. Ruocco.  
PHYSICAL REVIEW LETTERS **99**, 025701, (2007). IF 6.944

**2008**

31. *Crossover between Hydrodynamic and Kinetic Modes in Binary Liquid Alloys.*  
S. Cazzato, T. Scopigno, T. Bryk, I. Mryglod and G. Ruocco.  
PHYSICAL REVIEW B **77**, 094204 (2008). IF 3.322
32. *Fragility and glassy dynamics of  $2Ca(NO_3)23KNO_3$  under pressure: Molecular dynamics simulations.*  
M.C. Ribeiro, T. Scopigno and G. Ruocco.  
JOURNAL OF CHEMICAL PHYSICS **128**, 191104 (2008). IF 3.149
33. *High frequency dynamics in liquid Nickel: an IXS study.*  
S. Cazzato, T. Scopigno, S. Hosokawa, M. Inui, W-C. Pilgrim and G. Ruocco.  
JOURNAL OF CHEMICAL PHYSICS **108**, 234502 (2008). IF 3.149

**2009**

34. *Inelastic x-ray scattering from high pressure fluids in a diamond anvil cell.*  
F.A. Gorelli, M. Santoro, T. Scopigno, M. Krisch, T. Bryk, G. Ruocco and R. Ballerini.  
APPLIED PHYSICS LETTERS **94**, 074102 (2009). IF 3.554
35. *Evaluating the Prigogine-Defay ratio for a glass former by molecular dynamics simulations.*  
M.C. Ribeiro, T. Scopigno and G. Ruocco.  
JOURNAL OF PHYSICAL CHEMISTRY B **113**, 3099 (2009). IF 3.471
36. *Slow dynamics of liquid Se studied by InfraRed Photon Correlation Spectroscopy.*  
S. Cazzato, T. Scopigno, S. N. Yannopoulos and G. Ruocco.  
JOURNAL OF NON-CRYSTALLINE SOLIDS **355**, 1797-1800 (2009). IF 1.252

#### 2010

37. *Universal relation between viscous flow and fast dynamics in glass-forming materials.*  
T. Scopigno, D. Cangialosi and G. Ruocco.  
PHYSICAL REVIEW B **81**, 100202 (2010). IF 3.774
38. *The Widom line as the crossover between liquid-like and gas-like behaviour in supercritical fluids.*  
G.G. Simeoni, T. Bryk, F.A. Gorelli, M. Krisch, G. Ruocco, M. Santoro and T. Scopigno.  
NATURE PHYSICS **6**, 503 (2010). IF 18.430
39. *Collective excitations in supercritical fluids: Analytical and molecular dynamics study of "positive" and "negative" dispersion.*  
T. Bryk, I. Mryglod, T. Scopigno, G. Ruocco, F.A. Gorelli and M. Santoro.  
JOURNAL OF CHEMICAL PHYSICS **132**, 1 (2010). IF 2.921
40. *Sound attenuation and anharmonic damping in solids with correlated disorder.*  
W. Schirmacher, C. Tomaras, B. Schmid, G. Baldi, G. Viliani, G. Ruocco and T. Scopigno.  
CONDENSED MATTER PHYSICS **13**, 23606 (2010). IF 0.8

#### 2011

41. *Visualizing coherent phonon propagation in the 100 GHz range: a Broadband Picosecond Acoustics approach.*  
E. Pontecorvo, M. Ortolani, D. Polli, M. Ferretti, G. Ruocco, G. Cerullo and T. Scopigno.  
APPLIED PHYSICS LETTERS **98**, 011901 (2011). IF 3.844

42. *Femtosecond Stimulated Raman Spectrometer in the 320-520nm range.*  
E. Pontecorvo, S.M. Kapetanaki, M. Badioli, D. Brida, M. Marangoni, G. Cerullo and T. Scopigno.  
OPTICS EXPRESS **19**, 1107 (2011). IF 3.587
43. *Vibrational dynamics and surface structure of amorphous materials.*  
T. Scopigno, W. Steurer, S. N. Yannopoulos, A. Chrissanthopoulos, M. Krisch, G. Ruocco and T. Wagner  
NATURE COMMUNICATIONS **2:195**, doi 10.1038 / ncomms1197 (2011). IF 7.396
44. *Response to the Comment on "Visualizing coherent phonon propagation in the 100 GHz range: a Broadband Picosecond Acoustics approach".*  
E. Pontecorvo, C. Ferrante, M. Ferretti, M. Ortolani, D. Polli, G. Ruocco, G. Cerullo and T. Scopigno.  
APPLIED PHYSICS LETTERS **98**, 246102 (2011). IF 3.844
45. *Pressure behavior of the sound velocity of liquid water at room temperature in the terahertz regime."*  
M. Santoro, F. Gorelli, T. Scopigno, M. Krisch, F. Sette and G. Ruocco  
PHYSICAL REVIEW B **84**, 092301 (2011). IF 3.691
46. *Computer simulation study of thermodynamic scaling of dynamics of  $2Ca(NO_3)_2 \cdot 3KNO_3$ .*  
M.C. Ribeiro, T. Scopigno and G. Ruocco.  
JOURNAL OF CHEMICAL PHYSICS **135**, 164510 (2011). IF 3.333
- 2013**
47. *Landau-Placzek ratio for heat density dynamics and its application to heat capacity of liquids*  
T. Bryk, G. Ruocco, and T. Scopigno  
JOURNAL OF CHEMICAL PHYSICS **138**, 034502 (2013) IF 3.122
48. *Dynamics and Thermodynamics beyond the critical point*  
F. A. Gorelli, T. Bryk, M. Krisch, G. Ruocco, M. Santoro and T. Scopigno  
SCIENTIFIC REPORTS **3**, 1203, doi:10.1038/srep01203. (2013) IF 5.078
49. *Acoustic dynamics of glasses at mesoscopic wavelengths*  
C. Ferrante, E. Pontecorvo, G. Cerullo, A. Chiasera, G. Ruocco, W. Schirmacher and T. Scopigno  
NATURE COMMUNICATIONS **4:1793** doi: 10.1038/ncomms2826 (2013) IF 10.742

50. *Spectrally tailored narrowband pulses for femtosecond stimulated Raman spectroscopy in the range 330nm-750nm*  
E. Pontecorvo, C. Ferante, C. Elles and T. Scopigno  
OPTICS EXPRESS **21**, 6866-6872 (2013). IF 3.525
51. *Dynamical crossover at the liquid-liquid transformation of a compressed molten alkali metal.*  
T. Bryk, S. De Panfilis, F.A. Gorelli, E. Gregoryanz, M. Krisch, G. Ruocco, M. Santoro, T. Scopigno and A.P. Seitsonen  
PHYSICAL REVIEW LETTERS **111**, 077801, (2013). IF 7.728
52. *Acoustic-like dynamics of amorphous drugs in the THz regime.*  
E.A.A. Pogna, C. Rodriguez-Tinoco, J. Rodriguez-Viejo and T. Scopigno.  
SCIENTIFIC REPORTS **3**, 2518; doi:10.1038/srep02518 (2013). IF 5.078

#### 2014

53. *Acoustic dynamics of supercooled indomethacin probed by Brillouin light scattering.*  
S. De Panfilis, E.A.A. Pogna, A. Virga and T. Scopigno.  
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, **16**, 14206 (2014). IF 4.493
54. *Structural rearrangement accompanying the ultrafast electrocyclization of a photochromic molecular switch.*  
E. Pontecorvo, C. Ferrante, C.G. Elles and T. Scopigno.  
JOURNAL OF PHYSICAL CHEMISTRY B, **118**, 6915-6921, (2014). IF 3.302
55. *Interplay between Fragility and Glass Dynamics.*  
T. Scopigno and D. Cangialosi.  
FRAGILITY OF GLASS-FORMING LIQUIDS, **16**, Text and readings in the physical sciences, Hindustan Book Agency (2014).
56. *Charge-density correlations in pressurized liquid lithium calculated using ab initio molecular dynamics.*  
T. Bryk, I. Klevets, G. Ruocco, T. Scopigno, and A.P. Seitsonen  
PHYSICAL REVIEW B **90**, 014202, (2014). IF 3.736
57. *Collective excitations in soft-sphere fluids.*  
T. Bryk, F. Gorelli, M. Santoro, G. Ruocco and T. Scopigno  
PHYSICAL REVIEW E **90**, 042301, (2014). IF 2.288

58. *IRIDE: Interdisciplinary research infrastructure based on dual electron linacs and lasers.*

M. Ferrario, D. Alesini, M. Alessandrini et al.  
 NUCLEAR INSTRUMENTS AND METHODS IN PHYSICS RESEARCH SECTION A: ACCELERATORS, SPECTROMETERS, DETECTORS AND ASSOCIATED EQUIPMENT **740**, 138-146, (2014). IF 1.216

**2015**

59. *Low-noise, vibrational-phase-sensitive chemical imaging by balanced detection RIKE.*

V. Kumar, N. Coluccelli, M. Cassinerio, M. Celebrano, A. Nunn, M. Levrero, T. Scopigno, G. Cerullo and M. Marangoni  
 JOURNAL OF RAMAN SPECTROSCOPY **46**, 109, (2015). IF 2.395

60. *Probing equilibrium glass flow up to exapoise viscosities.*

E.A.A. Pogna, C. Rodriguez-Tinoco, G. Cerullo, C. Ferrante, J. Rodriguez-Viejo and T. Scopigno.  
 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCE, **112**, 2331 (2015). IF 9.423

61. *Theory of vibrational anomalies in glasses.*

W. Schirmacher, T. Scopigno and G. Ruocco  
 JOURNAL OF NON-CRYSTALLINE SOLIDS **407**, 133, (2015). IF 1.825

62. *Heat capacity of liquids: A hydrodynamic approach.*

T. Bryk, T. Scopigno and G. Ruocco.  
 CONDENSED MATTER PHYSICS **18**, 133, (2015). IF 0.621

63. *Energy flow between spectral components in 2D Broadband Stimulated Raman Spectroscopy.*

G. Batignani, G. Fumero, S. Mukamel and T. Scopigno.  
 PHYSICAL CHEMISTRY CHEMICAL PHYSICS, **17**, 10454 (2015). IF 4.449

64. *Metformin targets a phosphoSTAT3-miRNAs pathway to inhibit lipid droplets accumulation and intracellular inflammation in vitro and in vivo.*

N. Pediconi, S. Di Cocco, S. Piconese, F. Mori, L. Belloni, A. D. Nunn, T. Scopigno, V. Barnaba, G. Blandino, S. Strano, M. Levrero.  
 HEPATHOLOGY, **62**, 680, (2015). IF 11.711

65. *Probing ultrafast photoinduced dynamics of the exchange energy in an Heisenberg antiferromagnet.*

G. Batignani, D. Bossini, N. Di Palo, C. Ferrante, E. Pontecorvo, G. Cerullo, A. Kimel and T. Scopigno.  
 NATURE PHOTONICS, **9**, 506, (2015). IF 28.381

66. *On the resolution limit of Femtosecond Stimulated Raman Spectroscopy: modelling fifth-order signals with overlapping pulses.*  
G. Fumero, G. Batignani, K. E. Dorfman, S. Mukamel and T. Scopigno.  
CHEM. PHYS. CHEM., **16**, 3834-3443 (2015). IF 3.138
67. *Pressure-induced emergence of unusually high-frequency transverse excitations in a liquid alkali metal: Evidence of two types of collective excitations contributing to the transverse dynamics at high pressures.*  
T. Bryk, G. Ruocco, T. Scopigno and A. Seitsonen.  
JOURNAL OF CHEMICAL PHYSICS, **143**, 104502 (2015). IF 2.894

**2016**

68. *Broadband Stimulated Raman spectroscopy in electronically resonant biomolecules.*  
G. Batignani, E. Pontecorvo, G. Giovannetti, C. Ferrante, G. Fumero and T. Scopigno.  
SCIENTIFIC REPORTS, **6** 18445, (2016). IF 4.259
69. *The histone deacetylase inhibiting drug Entinostat induces lipid accumulation in differentiated HepaRG cells.*  
Abigail Nunn, Tullio Scopigno, Natalia Pediconi, Massimo Levrero, Henning Hagman, Juris Kiskis, and Annika Enejder.  
SCIENTIFIC REPORTS **6**, 28025, (2016). IF 4.259
70. *Visualizing excited-state dynamics of a diaryl thiophene: femtosecond stimulated Raman scattering as a probe of conjugated molecules.*  
G. Batignani, E. Pontecorvo, C. Ferrante, M. Aschi, C.G. Elles and T. Scopigno  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **7** 2981, (2016). IF 9.353
71. *Direct observation of sub-picosecond vibrational dynamics in photoexcited myoglobin.*  
C. Ferrante, E. Pontecorvo, G. Cerullo, M. Vos, T. Scopigno  
NATURE CHEMISTRY, **8** 1137-1143, (2016). IF 25.870

**2017**

72. *Manipulating impulsive stimulated Raman spectroscopy with a chirped probe pulse.*  
L. Monacelli, G. Batignani, G. Fumero, C. Ferrante, S. Mukamel and T. Scopigno.  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **8** 966, (2017). IF 8.709

73. *Behaviour of Supercritical Fluids Across the "Frenkel Line"*.  
T. Bryk, F. Gorelli, I. Mryglod, G. Ruocco, M. Santoro and  
T. Scopigno.  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **8** 4995,  
(2017). IF 8.709
74. *In-line balanced detection stimulated Raman scattering microscopy*.  
Francesco Crisafi, Vikas Kumar, Tullio Scopigno, Marco  
Marangoni, Giulio Cerullo and Dario Polli.  
SCIENTIFIC REPORTS **7**, 10745, (2017). IF 4.122

**2018**

75. *Raman spectroscopy of graphene under ultrafast laser excitation*.  
C. Ferrante, A. Virga, L. Benfatto, M. Martinati, D. De  
Fazio, U. Sassi, C. Fasolato, A. K. Ott, P. Postorino, D. Yoon,  
G. Cerullo, F. Mauri, A. C. Ferrari, T. Scopigno.  
NATURE COMMUNICATIONS, **9** 308, (2018). IF 11.878
76. *Resonant Broadband Stimulated Raman scattering in Myoglobin*.  
C. Ferrante, G. Batignani, G. Fumero, E. Pontecorvo, A.  
Virga, L. C. Montemiglio, G. Cerullo, M. H. Vos, T.  
Scopigno.  
JOURNAL OF RAMAN SPECTROSCOPY, 1-8, (2018)  
<https://doi.org/10.1002/jrs.5323>. IF 2.809
77. *Probing Femtosecond Lattice Displacement upon Photo-carrier generation in Lead Halide Perovskite*.  
Giovanni Batignani, Giuseppe Fumero, Ajay Ram Srimath  
Kandada, Giulio Cerullo, Marina Gandini, Carino Ferrante,  
Annamaria Petrozza, Tullio Scopigno.  
NATURE COMMUNICATIONS, **9** 1971, (2018). IF 11.878
78. *Comment on: "Emergence and evolution of the k gap in spectra of liquid and supercritical states"*.  
T. Bryk, I. Mryglod, G. Ruocco, and T. Scopigno.  
PHYSICAL REVIEW LETTERS, **120** 219601, (2018). IF 9.227
79. *Reply to Comment on: "Behaviour of Supercritical Fluids Across the "Frenkel Line"*.  
T. Bryk, F. Gorelli, I. Mryglod, G. Ruocco, M. Santoro and  
T. Scopigno.  
J. PHYS. CHEM. B, **122**, 22, 6120-6123, (2018) DOI:  
[10.1021/acs.jpcc.8b01900](https://doi.org/10.1021/acs.jpcc.8b01900). IF 2.923

**2019**

80. *Tracking the connection between disorder and energy landscape in glasses using geologically hyperaged amber.*  
E. A. A. Pogna, A. I. Chumakov, C. Ferrante, M. A. Ramos, T. Scopigno  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **10** 427-432, (2019) DOI: 10.1021/acs.jpcllett.9b00003. IF 6.710
81. *Genuine dynamics vs cross phase modulation artefacts in Femtosecond Stimulated Raman Spectroscopy.*  
Giovanni Batignani, Giuseppe Fumero, Emanuele Pontecorvo, Carino Ferrante, Shaul Mukamel, and Tullio Scopigno  
ACS PHOTONICS, **6** 492, (2019) DOI: 10.1021/acsp Photonics.8b01467. IF 6.864
82. *The Potential of EuPRAXIA@SPARCLAB for Radiation Based Techniques.*  
A. Balerna, S. Bartocci, G. Batignani et al.  
CONDENSED MATTER, **4** 30, (2019).
83. *Coherent anti-Stokes Raman Spectroscopy of single and multi-layer graphene.*  
A. Virga, C. Ferrante, G. Batignani, D. De Fazio, A. D. Nunn, A. C. Ferrari, G. Cerullo, T. Scopigno.  
NATURE COMMUNICATIONS, **10** 3658, (2019). IF 12.121
84. *Modelling the ultrafast response of two-magnon Raman excitations in antiferromagnets on the femtosecond timescale.*  
G. Batignani, E. Pontecorvo, D. Bossini, C. Ferrante, G. Fumero, G. Cerullo, S. Mukamel and T. Scopigno.  
ANNALEN DER PHYSIK, 1900439, (2019). IF 3.317
85. *Broadband Impulsive Stimulated Raman Scattering based on a Chirped Detection.*  
G. Batignani, C. Ferrante, G. Fumero and T. Scopigno.  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **10** 7789, (2019). IF 6.710

**2020**

86. *Accessing Excited State Molecular Vibrations by Femtosecond Stimulated Raman Spectroscopy.*  
G. Batignani, C. Ferrante and T. Scopigno.  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **11**, 7805 (2020). IF 6.475
87. *Complex dynamics in nanoscale phase separated supercooled liquids.*  
S. Cazzato, A. Chrissanthopoulos, M. Micoulaut, T. Scopigno, and S.N. Yannopoulos.  
PHYSICAL REVIEW RESEARCH, **2** 032007(R), (2020).

88. *Two-dimensional impulsively stimulated resonant Raman spectroscopy of molecular excited-states.*  
G. Fumero, C. Schnedermann, G. Batignani, T. Wende, M. Liebel, G. Bassolino, C. Ferrante, S. Mukamel, P. Kukura, and T. Scopigno.  
PHYSICAL REVIEW X, **10** 011051, (2020). IF 15.762

89. *Ultrafast Dynamics and Vibrational Relaxation in Six-Coordinate Heme Proteins Revealed by Femtosecond Stimulated Raman Spectroscopy.*  
Carino Ferrante, Giovanni Batignani, Emanuele Pontecorvo, Linda C. Montemiglio, Marten H. Vos and Tullio Scopigno.  
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, **142**, 5, 2285 (2020). IF 14.612

## 2021

90. *Non-linear self-driven spectral tuning of Extreme Ultraviolet Femtosecond Pulses in monoatomic materials.*  
Carino Ferrante, Emiliano Principi, Andrea Marini, Giovanni Batignani, Giuseppe Fumero, Alessandra Virga, Laura Foglia, Riccardo Mincigrucci, Alberto Simoncig, Carlo Spezzani, Claudio Masciovecchio and Tullio Scopigno.  
LIGHT: SCIENCE AND APPLICATIONS, **10**, 92, (2021). IF 17.782

91. *Excited-State Energy Surfaces in Molecules Revealed by Impulsive Stimulated Raman Excitation Profiles.*  
Giovanni Batignani, Carlotta Sansone, Carino Ferrante, Giuseppe Fumero, Shaul Mukamel, and Tullio Scopigno.  
THE JOURNAL OF PHYSICAL CHEMISTRY LETTERS, **12**, 9239-9247, (2021). IF 6.475

92. *Stimulated Raman lineshapes in the large light-matter interaction limit.*  
Giovanni Batignani, Giuseppe Fumero, Emanuele Mai, Miles Martinati and Tullio Scopigno.  
OPTICAL MATERIALS: X, ACCEPTED, **XX**, 9239-9247, (2021). IF 3.39

93. *Picosecond energy transfer in a transition metal dichalcogenide-graphene heterostructure revealed by transient Raman spectroscopy.*  
Carino Ferrante, Giorgio Di Battista, Luis E. Parra Lopez, Giovanni Batignani, Etienne Lorchat, Alessandra Virga, Stephane Berciaud and Tullio Scopigno.  
SUBMITTED TO PNAS, **XX**, XX, (2021). IF xxx

94. *Broadband Stimulated Raman Imaging based on Multi-channel Lock-in Detection for Spectral Histopathology.*  
Alejandro De la Cadena, Federico Vernuccio, Andrea Ragni, Giuseppe Sciortino, Renzo Vanna, Carino Ferrante, Natalia Pediconi, Carlo Valensise, Luca Genchi, Sergey P. Laptanok, Andrea Doni, Marco Erreni, Tullio Scopigno, Carlo Liberale, Giorgio Ferrari, Marco Sampietro, Giulio Cerullo, Dario Polli.  
SUBMITTED TO NAT. COMM., **XX**, XX, (2021). IF xxx
95. *High Frequency Dynamics in Glasses*  
G. Ruocco, W. Schirmacher, T. Scopigno and F. Sette  
THE REVIEW OF MODERN PHYSICS Invited review article, in preparation

### Conference Proceedings

**1999**

96. *Acoustic nature of the Boson Peak in vitreous silica.*  
C. Masciovecchio, V. Mazzacurati, G. Monaco, G. Ruocco, T. Scopigno, F. Sette, P. Benassi, A. Cunsolo, A. Fontana, M. Krisch, A. Mermet,  
M. Montagna, F. Rossi, M. Sampoli, G. Signorelli, R. Verbeni.  
PHILOSOPHICAL MAGAZINE B **79**, 2013 (1999). IF 1.259
97. *Inelastic X-ray scattering determination of the dynamic structure factor of liquid lithium.*  
T. Scopigno, U. Balucani, A. Cunsolo, C. Masciovecchio, G. Ruocco, and F. Sette.  
PHILOSOPHICAL MAGAZINE B **79**, 2027 (1999). IF 1.259
98. *Low frequency dynamics of silica xerogels porous systems.*  
G. Cicognani, A. J. Dianoux, A. Fontana, F. Rossi, M. Montagna, T. Scopigno, J. Pelous, F. Terki, J. N .Pilliez, T. Woignier  
PHILOSOPHICAL MAGAZINE B **79**, 2091 (1999). IF 1.259

**2000**

99. *Relaxation Dynamics of Lithium: Inelastic X-ray Scattering and Computer Simulations*  
T. Scopigno, U. Balucani, G. Ruocco, and F. Sette.  
SCIENCE AND TECHNOLOGY OF HIGH PRESSURE, ed. M.H.Manghnani, W.J. Nellis and F. Nicol vol. **1**, 425 (2000).

**2002**

100. *Inelastic x-ray scattering study of the collective dynamics in simple liquid metals*  
T. Scopigno, U. Balucani, G. Ruocco, F. Sette.  
JOURNAL OF NON CRYSTALLINE SOLIDS **312-314**, 121 (2002). IF 1.435
101. *Inelastic x-ray scattering and the high frequency dynamics of disordered systems*  
T. Scopigno, U. Balucani, G. Ruocco, F. Sette.  
PHYSICA B **318/4**, 341 (2002). IF 0.609
102. *Short time dynamics in simple disordered systems*  
T. Scopigno, G. Ruocco, F. Sette, G. Viliani.  
PHILOSOPHICAL MAGAZINE B **82**, 233 (2002). IF 1.158

**2003**

103. *High frequency transverse dynamics in glasses.*  
T. Scopigno, E. Pontecorvo, R. Di Leonardo, M. Krisch, G. Monaco, G. Ruocco, B. Ruzicka, and F. Sette.  
JOURNAL OF PHYSICS: CONDENSED MATTER **15**, S1269 (2003). IF 1.757

**2004**

104. *Inelastic X ray Scattering and the high frequency dynamics of molecular liquids.*  
E. Pontecorvo, R. Di Leonardo, M. Krisch, G. Monaco, G. Ruocco, B. Ruzicka, T. Scopigno, and F. Sette.  
PURE AND APPLIED CHEMISTRY **76**, 79 (2004). IF 1.449
105. *High-Frequency Transverse-like excitations in glassy glycerol.*  
T. Scopigno, E. Pontecorvo, R. Di Leonardo, M. Krisch, G. Monaco, G. Ruocco, B. Ruzicka, and F. Sette.  
PHILOSOPHICAL MAGAZINE B **84**, 1453 (2004). IF 1.343

**2006**

106. *High Frequency Dynamics of a Orientationally Disordered Molecular Crystal*  
R. Angelini, T. Scopigno, A. Beraud, G. Ruocco.  
JOURNAL OF NON-CRYSTALLINE SOLIDS **352**, 4552-4555 (2006). IF 1.362

**2007**

107. *Relaxation dynamics and acoustic properties in simple liquids*  
T. Scopigno and G. Ruocco.  
JOURNAL OF NON-CRYSTALLINE SOLIDS **353**, 3160 (2007). IF 1.319

108. *High frequency collective dynamics in liquid potassium.*  
A. Monaco, T. Scopigno, P. Benassi, A. Giugni, G. Monaco,  
M. Nardone, G. Ruocco, M. Sampoli.  
JOURNAL OF NON-CRYSTALLINE SOLIDS **353**, 3154 (2007).  
IF 1.319

**2008**

109. *Vibrational excitations in systems with correlated disorder.*  
W. Schirmacher, B. Schmid, C. Tomaras, G. Viliani, G.  
Baldi, G. Ruocco and T. Scopigno  
PHYSICA STATUS SOLIDI (C) **5**, 862 (2008). IF 0.81

**2010**

110. *Broadly tunable narrowband pump pulses for Femtosecond Stimulated Raman Spectroscopy.*  
M. Badioli, D. Brida, S.M. Kapetanaki, M. Marangoni, E.  
Pontecorvo, A. Quatela, G. Cerullo and T. Scopigno.  
LASERS AND ELECTRO-OPTICS (CLEO) AND QUANTUM ELECTRONICS AND LASER SCIENCE CONFERENCE (QELS), 2010 CONFERENCE ON, p.p. 1-2, 16-21 May 2010.

**2011**

111. *Proceedings of the 14th Liquid and Amorphous Metals International Conference*  
Editors: T. Scopigno, S. De Panfilis and A. Di Cicco  
EPJ-Web of Conferences **15**, 00001 (2011) IF 0.35

**2012**

112. *Visualizing Coherent Phonon Propagation in the 100 GHz Range: a Broadband Picosecond Acoustics Approach.*  
C. Ferrante, E. Pontecorvo, D. Polli, G. Cerullo and T.  
Scopigno.  
LASERS AND ELECTRO-OPTICS (CLEO) AND QUANTUM ELECTRONICS AND LASER SCIENCE CONFERENCE (QELS), 2012 CONFERENCE ON

**2013**

113. *Interplay between Fragility and Glass Dynamics.*  
T. Scopigno and D. Cangialosi  
TEXT AND READINGS IN THE PHYSICAL SCIENCES, **16**, Hindustan Book Agency (2013)

**2014**

114. *Snapshots of Sub-picosecond Dynamics in Heme-proteins Captured by Femtosecond Stimulated Raman Scattering.*  
C. Ferrante, E. Pontecorvo, G. Batignani and T. Scopigno.  
IN: YAMANOUCHI K., CUNDIFF S., DE VIVIE-RIEDLE R.,  
KUWATA-GONOKAMI M., DIMAURO L. (EDS) ULTRAFAST  
PHENOMENA XIX. SPRINGER PROCEEDINGS IN PHYSICS,  
SPRINGER, **162**, 521-523 (2015).

**2015**

115. *Collective Excitations in Supercritical Fluids.*  
T. Bryk, F. Gorelli, G. Ruocco, M. Santoro and T. Scopigno.  
PHYSICS OF LIQUID MATTER: MODERN PROBLEMS,  
SPRINGER PROCEEDINGS IN PHYSICS, **171**, chap.4 (2015).
116. *Optomechanical Characterization of Sub-micron Thick Optical Materials.*  
E. Pogna, C. Ferrante, G. Cerullo and T. Scopigno.  
EUROPEAN CONFERENCE ON LASERS AND ELECTRO-  
OPTICS - EUROPEAN QUANTUM ELECTRONICS CONFER-  
ENCE, OSA, **CE.12.6** (2015).

**2016**

117. *Probing ultrafast processes by fifth order Stimulated Raman Scattering.*  
G. Fumero, G. Batignani, K. E. Dorfman, S. Mukamel and  
T. Scopigno.  
JOURNAL OF PHYSICS: CONFERENCE SERIES, **689**, 012023,  
(2016). IF 0.540
118. *Probing ultrafast photo-induced dynamics of the exchange energy in a Heisenberg antiferromagnet.*  
G. Batignani, D. Bossini, N. Di Palo, C. Ferrante, E. Pon-  
tecorvo, G. Cerullo, A. Kimel and T. Scopigno  
IN INTERNATIONAL CONFERENCE ON ULTRAFAST PHE-  
NOMENA, OSA TECHNICAL DIGEST., **UTh3A.7** (2016).
119. *Direct observation of sub-picosecond vibrational dynamics in photoexcited myoglobin.*  
C. Ferrante, E. Pontecorvo, G. Cerullo, M. Vos and T.  
Scopigno  
IN INTERNATIONAL CONFERENCE ON ULTRAFAST PHE-  
NOMENA, OSA TECHNICAL DIGEST., **UTh4A.9** (2016).

**2017**

120. *Graphene synchronised all-fiber laser for coherent Raman spectroscopy.*  
D. Popa, D. Viola, G. Soavi, B. Fu, L. Lombardi, S. Hodge, D. Polli, T. Scopigno, G. Cerullo and A.C. Ferrari.  
CONFERENCE: CONFERENCE ON LASERS AND ELECTRO-OPTICS EUROPE / EUROPEAN QUANTUM ELECTRONICS CONFERENCE (CLEO/EUROPE-EQEC) LOCATION: MUNICH, GERMANY JUN 25-29, 2017, **EI.4.6** (2017).
121. *Graphene synchronised all-fiber laser for coherent Raman spectroscopy.*  
D. Popa, D. Viola, G. Soavi, B. Fu, L. Lombardi, S. Hodge, D. Polli, T. Scopigno, G. Cerullo and A.C. Ferrari.  
CONFERENCE: CONFERENCE ON LASERS AND ELECTRO-OPTICS EUROPE / EUROPEAN QUANTUM ELECTRONICS CONFERENCE (CLEO/EUROPE-EQEC) LOCATION: MUNICH, GERMANY JUN 25-29, 2017, **JTu5A.2** (2017).
122. *Phonon anomalies in Graphene induced by highly excited charge carriers.*  
C. Ferrante, A. Virga, D. De Fazio, U. Sassi, A.K. Ott, D. Yoon, L. Benfatto, G. Cerullo, F. Mauri, A.C. Ferrari, T. Scopigno.  
CONFERENCE: CONFERENCE ON LASERS AND ELECTRO-OPTICS EUROPE / EUROPEAN QUANTUM ELECTRONICS CONFERENCE (CLEO/EUROPE-EQEC) LOCATION: MUNICH, GERMANY JUN 25-29, 2017, **EI.4.6** (2017).

### 2019

123. *Raman spectroscopy of graphene under ultrafast laser excitation.*  
C. Ferrante, A. Virga, L. Benfatto, M. Martinati, D. De Fazio, U. Sassi, A.K. Ott, P. Postorino, D. Yoon, G. Cerullo, F. Mauri, A.C. Ferrari, T. Scopigno.  
EPJ WEB CONF, **205**, 05003 (2019). IF 0.35
124. *Giancarlo Ruocco: from inelastic X-ray scattering to neuroscience.*  
T. Bryk, R. Di Leonardo, W. Schirmacher, T. Scopigno.  
CONDENSED MATTER PHYSICS, **22**, 40101 (2019). IF 0.581

### 2020

125. *Propagating density fluctuations in hydrodynamics and beyond.*  
S. Cazzato, M.G. Izzo, T. Bryk, T. Scopigno, G. Ruocco.  
ATTI DELLA ACCADEMIA PELORITANA DEI PERICOLANTI-CLASSE DI SCIENZE FISICHE, MATEMATICHE E NATURALI, **98**, S1, A2 (2020).

126. *Photon beam line of the water window FEL for the Eu-PRAXIA@SPARCLAB project.*  
 F. Villa, A. Balerna, E. Chiadroni, A. Cianchi, M. Coreno, S.A. Dabagov, A. DiCicco, R. Gunnella, A. Marcelli, C. Masciovecchio, M. Minicucci, S. Morante, J. Rezvani, T. Scopigno, F. Stellato and A. Trapananti  
 JOURNAL OF PHYSICS: CONFERENCE SERIES, **1596**, 012039 (2020). IF 0.540
127. *Disentangling genuine dynamics from cross phase modulation artefacts in Femtosecond Stimulated Raman Spectroscopy.*  
 G. Batignani, C. Ferrante, G. Fumero, T. Scopigno.  
 IN THE 22ND INTERNATIONAL CONFERENCE ON ULTRAFAST PHENOMENA 2020, F. KÄRTNER, M. KHALIL, R. LI, F. LÉGARÉ, AND T. TAHARA, EDS., OSA TECHNICAL DIGEST (OPTICAL SOCIETY OF AMERICA, 2020), PAPER, **Tu4A.14**, (2020).

**Research  
 highlights/Other  
 publications**

**1999**

128. *Non-Dynamic Origin of the Acoustic Attenuation at High Frequency in Glasses*  
 R. Di Leonardo, D. Fioretto, M. Krisch, C. Masciovecchio, G. Monaco, G. Ruocco, T. Scopigno and F. Sette,  
 INFM HIGHLIGHTS (1999)

**2001**

129. *Observation of Umklapp processes in disordered materials.*  
 T. Scopigno, M. D'Astuto, M. Krisch, G. Ruocco, F. Sette,  
 ESRF HIGHLIGHTS (2001)

**2003**

130. *Fragility of liquids or fragility of glasses?*  
 T. Scopigno, G. Ruocco, F. Sette and G. Monaco,  
 ESRF HIGHLIGHTS (2003)
131. *High frequency dynamics in glassy selenium.*  
 T. Scopigno, R. Di Leonardo and A.Q.R. Baron,  
 SPRING-8 RESEARCH FRONTIERS (2003)

**2005**

132. *La transizione Vetrosa*  
 T. Scopigno  
 KOS PERIODICO SCIENTIFICO DELL'ISTITUTO SAN RAFAELE DI MILANO (2005)

133. *La transizione Vetrosa*  
T. Scopigno, G. Ruocco  
SCIENZA ONLINE **20**, Anno 2, 17 Settembre 2005
- 2008**
134. *Collective Dynamics in Liquids: today and tomorrow*  
Guest Editors T. Bryk and T. Scopigno  
Special issue of "CONDENSED MATTER PHYSICS" **11** (2008)
- 2010**
135. *Supercritical fluids: liquid-like to gas-like dynamical crossover at the Widom line*  
G.G. Simeoni, T. Bryk, F.A. Gorelli, M. Krisch, G. Ruocco, M. Santoro and T. Scopigno  
ESRF Highlights (2010)
- 2011**
136. *Liquid and Amorphous metals: Current trends and future perspectives*  
Editors: T. Scopigno, S. De Panfilis and A. Di Cicco  
European Physical Journal Special Topics **196**, 1 (2011)
- 2016**
137. *How slow does glass flow.*  
E.A.A. Pogna, C. Rodriguez-Tinoco, J. Rodriguez-Viejo and T. Scopigno.  
ESRF Highlights (2016).
- 2016**
138. *I segreti del vetro in un fossile millenario.*  
T. Scopigno.  
Le Scienze, numero di Febbraio 2021.

## Part XI - Summary of scientific achievements

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ITEM	TOTAL	LAST 15 YEARS
Papers	123 (Scopus); 116 (WOS)	89 (Scopus); 83 (WOS)
Books/special issues	3 (Scopus)	3 (Scopus)
Total Citations	3582 (Scopus); 3382 (WOS)	1909 (Scopus); 1796 (WOS)
Average Citations/Product	29.1 (Scopus); 29.2 (WOS)	21.4 (Scopus); 21.6 (WOS)
Hirsch (H) index	33 (Scopus); 33 (WOS)	25 (Scopus); 24 (WOS)
Normalized H index*	1.43 (Scopus); 1.43 (WOS)	
Total Impact Factor	602 (WOS: JCR)	424 (WOS: JCR)
Average IF per publication	5.6 (WOS: JCR)	5.8 (WOS: JCR)
Patents	3 (Scopus)	3 (Scopus)

\*H index divided by the academic seniority (intended as since the first publication year.)

**Publications** More than 120 papers on International peer reviewed journals (123 according to Scopus)

**H-factor** ISI:33 (divided by academic seniority=1.43) SCHOLAR:37 (divided by academic seniority=1.61)

**Number of citations** SCOPUS: Total: 3582; Most cited paper: 309; Average citation per item: 29.1. SCHOLAR: Total: 4480; Most cited paper: 381

**Impact Factor** Total: 602 (WOS)

**Papers with large impact factor (>5)** Science (1x); The Reviews of Modern Physics (1x + 1 Editorially approved); Nature Photonics (1x); Nature Chemistry (1x); Nature Physics (1x); Nature Communications (5x); Nature Light Science and Applications (1x); Physical Review X (1x), JACS (1x), PNAS (1x); Journal Of Physical Chemistry Letters (7x), Physical Review Letters (17x), Nature Scientific Reports (2x), Hepatology (1x), ACS Photonics (1x)

**Communications** More than 90 oral contributions at international conferences and schools, most of them invited (see section "Conferences and Invited Talks" for further details)

**Patents** 3 patents on graphene used as saturable absorber to simultaneously mode-lock Er and an Yb fiber lases.

**Habilitation**

- Full professor in experimental condensed matter physics, 02/B1, from 17/09/2019 to 17/09/2025
- Full professor in experimental condensed matter physics, 02/B1, from 11/12/2013 to 11/12/2022
- Associate professor in experimental condensed matter physics, 02/B1, from 11/12/2013 to 11/12/2022