PUBLICATIONS
(current *H*-index: 30)

REFEREED JOURNAL PUBLICATIONS

1. **A. Cunsolo** and M. Nardone, "*Velocity Dispersion and Viscous Relaxation in Supercooled Water",* Journal of Chemical Physics **105**, 3911-3917 (1996).'
2. C. Masciovecchio, G. Ruocco, F. Sette, P. Benassi, **A. Cunsolo**, M. Krisch, V. Mazzacurati, A. Mermet, G. Monaco and R. Verbeni, "*High-Frequency Propagating Modes in Vitreous Silica at 295 K*", Physical Review B **55,** 8049-8051 (1997).
3. C. Masciovecchio, G. Monaco, G. Ruocco, F. Sette, **A. Cunsolo**, M. Krisch, A. Mermet, M. Soltwisch and R. Verbeni, "*High Frequency Dynamics of Glass Forming Liquids at the Glass Transition*", *Physical Review Letters* **80**, 544-547 (1998).
4. **A. Cunsolo**, G. Pratesi, G. Ruocco, M. Sampoli, F. Sette, R. Verbeni, F. Barocchi, M. Krisch, C. Masciovecchio and M. Nardone, "*Dynamics of Dense Supercritical Neon at the Transition from Hydrodynamical to Single-Particle Regimes*", Physical Review Letters **80**, 3515-3518 (1998).
5. A. Mermet, **A. Cunsolo**, E. Duval, M. Krisch, C. Masciovecchio, S. Perghem, G. Ruocco, F. Sette, R. Verbeni and G. Viliani, "*Pressure-Induced In-Glass Structural Transformation in the Amorphous Polymer Poly(Methylmethacrylate)",* Physical Review Letters **80**, 4205-4208 (1998).
6. **A. Cunsolo**, G. Ruocco, F. Sette, C. Masciovecchio, A. Mermet, G. Monaco, M. Sampoli and R. Verbeni, "*Experimental Determination of the Structural Relaxation in Liquid Water*" , Physical Review Letters **82**, 775-778 (1999); see also Erratum: Physical Review Letters **82**, 2810 (1999).
7. G. Monaco, **A. Cunsolo**, G. Ruocco and F. Sette, *" Viscoelastic Behavior of Water in the Terahertz-Frequency Range: An Inelastic X-Ray Scattering Study"*, Physical Review E **60**, 5505-5521 (1999).
8. A. Scopigno, U. Balucani, **A. Cunsolo**, C. Masciovecchio, G. Ruocco and F. Sette, *" Inelastic X-ray Scattering Determination of the Dynamic Structure Factor of Liquid Lithium"*, Philosophical Magazine B **79**, 2027-2035 (1999).
9. 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 and R. Verbeni, *"Acoustic Nature of the Boson Peak in Vitreous Silica",* Philosophical Magazine B **79**, 2013-2020 (1999).
10. **A. Cunsolo**, G. Pratesi, G. Ruocco, M. Sampoli, F. Sette, R. Verbeni, F. Barocchi, M.H. Krisch, C. Masciovecchio and M. Nardone, "*Is There Any Evidence of Relaxation in the High Frequency Dynamics of Noble Gases?*", Journal of Physics and Chemistry of Solids **61**, 477-483 (2000).
11. F. Sette, G. Ruocco, **A. Cunsolo**, C. Masciovecchio, G. Monaco and R. Verbeni, *"Determination of the Short-Wavelength Propagation Threshold in the Collective Excitations of Liquid Ammonia"*, Physical Review Letters **84**, 4136-4139 (2000).
12. O. Pilla, **A. Cunsolo**, A. Fontana, C. Masciovecchio, G. Monaco, M. Montagna, G. Ruocco, T. Scopigno and F. Sette, "*Nature of the Short Wavelength Excitations in Vitreous Silica: an X-Ray Brillouin Scattering Study*", Physical Review Letters **85**, 2136-2139 (2000).
13. T. Scopigno, U. Balucani, **A. Cunsolo**, Masciovecchio, G. Ruocco, F. Sette and R. Verbeni, *"Phonon-Like and Single-Particle Dynamics in Liquid Lithium"*, Europhysics Letters **50**, 189-195 (2000).
14. **A. Cunsolo**, G. Pratesi, R. Verbeni, G. Monaco, C. Masciovecchio, F. Sette, D. Colognesi and G. Ruocco, *"Microscopic Relaxation in Supercritical and Liquid Neon"*, Journal of Chemical Physics **114**, 2259-2267 (2001).
15. R. Senesi, C. Andreani, D. Colognesi, **A. Cunsolo** and M. Nardone, *"Deep-Inelastic Neutron Scattering Determination of the Single-Particle Kinetic Energy in Solid and Liquid ^{3}He",* Physical Review Letters **86**, 4584-4587 (2001).
16. R. Verbeni, G. Pratesi, **A. Cunsolo**, G. Monaco, F. Rosica, C. Masciovecchio, M. Nardone, G. Ruocco, F. Sette and F. Albergamo, *"Quantum Effects in the Dynamics of He Probed by Inelastic X Ray*

Scattering", Physical Review E **64**, 021203/1-8 (2001).

17. G. Monaco, **A. Cunsolo**, G. Pratesi, F. Sette and R. Verbeni, *"Deep Inelastic Atomic Scattering of X Rays in Liquid Neon"*, Physical Review Letters **88**, 227401/1-4 (2002).
18. **A. Cunsolo**, G. Pratesi, , D. Colognesi, R. Verbeni, F. Sette, G. Ruocco and M. Nardone, *"Microscopic Structure and Collective Modes in Liquid Hydrogen: a Preliminary Inelastic X Ray Scattering Study*", Philosophical Magazine B **82**, 305-312 (2002).
19. M. Krisch, P. Loubeyre, G. Ruocco, F. Sette, **A. Cunsolo**, M. D'Astuto, R. LeToullec, M. Lorenzen, A. Mermet, G. Monaco and R. Verbeni, *"Pressure Evolution of the High-Frequency Sound Velocity in Liquid Water",* Physical Review Letters **89**, 125502/1-12 (2002).
20. **A. Cunsolo**, G. Pratesi, D. Colognesi, R. Verbeni, M. Sampoli, F. Sette, G. Ruocco, R. Senesi, M. Krisch and M. Nardone, *"Microscopic Structure in Liquid Hydrogen and Deuterium: An X-Ray Scattering Study",* Journal of Low Temperature Physics **129**, 117-131 (2002).
21. **A. Cunsolo**, G. Monaco, G. Pratesi, R. Verbeni and M. Nardone, "*Transition from the Collective to the Single Particle Regimes in a Quantum Fluid*", Physical Review B **67**, 024507 (2003).
22. G. Venturi, E. Guarini, F. Formisano, A. Orecchini, **A. Cunsolo**, C. Petrillo, F. Sacchetti and F. Barocchi, "*Optimizing the Setup of the BRISP Spectrometer by Spgraded McStas Simulations*", Journal of Neutron Research **11**, 165-178 (2003).
23. F. Formisano, E. Guarini, A. Orecchini, **A. Cunsolo**, S. Jahn, G. Venturi, F. d'Anca, T. Gahl, A. Laloni, F. Barocchi, C. Petrillo, F. Sacchetti and J.-B. Suck, "*Progress on the Construction of the Thermal Neutron Scattering Spectrometer BRISP*", Physica B **350**, E795-E797 (2004).
24. P. Benassi; **A. Cunsolo**; R. Eramo; A. Giugni; M. Nardone and M. Sampoli, **"***Ultraviolet Brillouin Spectroscopy of Glass-Forming Glycerol",* Philosophical Magazine B **84**, 1413-1422 (2004).
25. F. Barocchi, J.B. Suck, D. Aisa, E. Babucci, **A. Cunsolo**, T. Gahl, S. Jahn, F. Formisano, A. Orecchini, C. Petrillo and F. Sacchetti, "*The Development of the BRISP Spectrometer at the Institut Laue-Langevin*", Nuclear Instruments and Methods in Physics Research A **544**, 620-642 (2005).
26. E. Pontecorvo, M. Krisch, **A. Cunsolo**, G. Monaco, A. Mermet, R. Verbeni, F. Sette and G. Ruocco, "*High Frequency Longitudinal and Transverse Dynamics in Water",* Physical Review E **71**, 011501 (2005).
27. **A. Cunsolo**, D. Colognesi, M. Sampoli, R. Senesi and R. Verbeni, *"Signatures of Quantum Behaviors in the Microscopic Dynamics of Liquid Hydrogen and Deuterium",* Journal of Chemical Physics **123**, 114509 (2005).
28. D. Aisa, E. Babucci, F. Barocchi, **A. Cunsolo**, F. D'Anca, A. De Francesco, F. Formisano, T. Gahl, E. Guarini, S. Jahn, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, F. Sacchetti, J.-B. Suck, G. Venturi, "*BRISP – A New Thermal Neutron Brillouin Scattering Spectrometer at the Institut Laue- Langevin*", Notiziario Neutroni e Luce di Sincrotrone **10**, 20-31, (2005).
29. D. Aisa, E. Babucci, F. Barocchi, **A. Cunsolo**, F. D'Anca, A. De Francesco, F. Formisano, T. Gahl, E. Guarini, S. Jahn, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, F. Sacchetti, J.-B. Suck and G. Venturi, "*BRISP: A New Thermal-Neutron Spectrometer for Small-Angle Studies of Disordered Matter* **",** Journal of Non-Crystalline Solids **352**, 5130-5135 (2006).
30. D. Aisa, S. Aisa, E. Babucci, F. Barocchi, **A. Cunsolo**, F. D'Anca, A. De Francesco, F. Formisano, T. Gahl, E. Guarini, S. Jahn, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, W.C. Pilgrim, A. Piluso, F. Sacchetti, J.B. Suck and G. Venturi, "*The Brillouin Spectrometer BRISP at the ILL*", Physica B: Condensed Matter 385-386, 1092-1094 (2006).
31. A. Giugni and **A. Cunsolo**, "*Structural Relaxation in the Dynamics of Glycerol: A joint Visible, UV and X Ray Inelastic Scattering Study*", Journal of Physics: Condensed Matter **18,** 889-902, (2006).
32. F. Bencivenga, **A. Cunsolo**, M. Krisch, G. Monaco, G. Ruocco and F. Sette, *"Adiabatic and Isothermal Sound Waves: The Case of Supercritical Nitrogen"*, Europhysics Letters **75**, 70-76 (2006).
33. **A. Cunsolo**, A. Orecchini, C. Petrillo and F. Sacchetti, *"Quasielastic Neutron Scattering Investigation of the Pressure Dependence of Molecular Motions in Water",* Journal of Chemical Physics **124**, 084503 (2006).
34. **A. Cunsolo**, A. Orecchini, C, Petrillo and F. Sacchetti, "*Pressure Evolution of Microscopic Diffusion*

in Liquid Water", Journal of Neutron Research **14**, 309-315 (2006).

35. D. Aisa, S. Aisa, E. Babucci, F. Barocchi, **A. Cunsolo**, F. D'Anca, A. De Francesco, F. Formisano, T, Gahl, E. Guarini, S. Jahn, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, W.C. Pilgrim, A. Piluso, F. Sacchetti, J.B. Suck and G. Venturi, "*Towards the Commissioning Phase of the BRIllouin SPectrometer BRISP*", Journal of Neutron Research **14**, 367–372 (2006).
36. F. Bencivenga, **A. Cunsolo**, M. Krisch, G. Monaco, G. Ruocco and F. Sette, "*The High Frequency Dynamics of Supercritical Nitrogen*", Philosophical Magazine B **87**, 665-671 (2007).
37. F. Bencivenga **A. Cunsolo**, M. Krisch , G. Monaco, L. Orsingher, G. Ruocco, A. Vispa and F. Sette, "*Structural and Collisional Relaxations in Liquids and Supercritical Fluids"*, Physical Review Letters **98**, 085501 (2007).
38. F. Bencivenga, **A. Cunsolo**, M. Krisch, G. Monaco, G. Ruocco and F. Sette, *"High Frequency Dynamics of Liquid and Supercritical Water"*, Physical Review E **75**, 051202 (2007).
39. **A. Cunsolo**, A. Orecchini, C. Petrillo and F. Sacchetti, "*On the Anomalous Behavior of Microscopic Diffusion in Liquid Water*", Journal of Physics: Condensed Matter **19,** 415118 (2007).
40. F. Bencivenga, **A. Cunsolo**, M. Krisch, G. Monaco, G. Ruocco and F. Sette, "*High Frequency Dynamics in Liquids and Supercritical Fluids: A Comparative IXS Study*", Journal of Chemical Physics **130**, 064501 (2009).
41. F. Sacchetti, A. Orecchini, **A. Cunsolo**, F. Formisano, and C. Petrillo, "*Coherent Neutron Scattering Study of Confined Water in Nafion"*, Physical Review B **80**, 024306 (2009).
42. **A. Cunsolo**, F. Formisano, C. Ferrero, F. Bencivenga and S. Finet, *"Pressure Dependence of the Large-Scale Structure of Water",* Journal of Chemical Physics **131**, 194502 (2009).
43. D. Reznik, K. Lokshin, D. C. Mitchell, D. Parshall, W. Dmowski, D. Lamago, R. Heid, K. -P. Bohnen, A. S. Sefat, M. A. McGuire, B. C. Sales, D. G. Mandrus, A. Subedi, D. J. Singh, A. Alatas, M. H. Upton, A. H. Said, A. Cunsolo, Yu. Shvydko and T. Egami, *"Phonons in Doped and Undoped $BaFe_2As_2$ Investigated by Inelastic X-Ray Scattering"*, Physical Review B **80**, 214534 (2009).
44. Y. Shvyd'ko, S. Stoupin, **A. Cunsolo**, A. H. Said and X. Huang, "*High-Reflectivity High-Resolution X-ray Crystal Optics with Diamonds*", Nature Physics **6**, 196-199 (2010).
45. **A. Cunsolo**, A. Orecchini, C. Petrillo and F. Sacchetti, "*Interplay Between Microscopic Diffusion and Local Structure of Water*", Journal of Physical Chemistry B **114**, 16713–16717 (2010).
46. M. G. Izzo, F. Bencivenga, **A. Cunsolo**, S. Di Fonzo, R. Verbeni and R. Gimenez De Lorenzo, "*The Single Particle Dynamics of Iodine in the Sachs Teller Regime: An Inelastic X-Ray Scattering Study*", Journal of Chemical Physics **133**, 124514 (2010).
47. **A. Cunsolo**, B. M. Leu, A. H. Said and Y. Q. Cai, "*Structural and Microscopic Relaxations in Glycerol: An* IXS *Study*", Journal of Chemical Physics **134**, 184502 (2011).
48. M. G. Izzo, F. Bencivenga, A. Gessini, **A. Cunsolo** and C. Masciovecchio, "*A Viscoelastic Analysis of IXS Spectra from He/Ne Mixtures*", Philosophical Magazine **91**, 1767-1775 (2011).
49. Y. P. Stetsko, J. W. Keister, D. S. Coburn, N. Kodituwakku, **A. Cunsolo** and Y. Q. Cai, "*Multiple-Wave Diffraction in High-Energy-Resolution X-Ray Backscattering Optics"*, Physical Review Letters **107**, 155503 (2011).
50. F. Bencivenga and **A. Cunsolo**, "*The Dispersive Behavior of Collective Excitations in Fluids: An Experimental Test for the Generalized Collective Modes Theory*", Journal of Chemical Physics **136**, 114508 (2012).
51. A. **Cunsolo**, C. N. Kodituwakku, F. Bencivenga, M. Frontzek B. M. Leu and A. H. Said "*Transverse Dynamics of Water Across the Melting: A Parallel Neutron and X Ray Inelastic Scattering Study*", Physical Review B **85**, 174305 (2012).
52. **A. Cunsolo**, "*On the Absence of a Positive Sound Dispersion in the THz Dynamics of Glycerol: an Inelastic X ray Scattering Study*", Journal of Physics: Condensed Matter, **24**, 375104 (2012).
53. A. **Cunsolo**, "*Onset of a Transverse Dynamics in the THz Spectrum of Water*", Molecular Physics **111**, 455-463 (2013).

54. **A. Cunsolo**, N. Kodituwakku, B.M. Leu, A. H. Said, "*Shear Propagation in the Terahertz Dynamics of Water-Glycerol Mixtures*", Journal of Chemical Physics **139**, 184507 (2013).
55. K. Smith, J. Poulsen, **A. Cunsolo**, and P. Rossky "*Refinement of the Experimental Dynamic Structure Factor for Liquid Para-Hydrogen and Ortho-Deuterium Using Semi-classical Quantum Simulation*", Journal of Chemical Physics **140**, 034501 (2014).
56. A. Suvorov, D. S. Coburn, **A Cunsolo**, J. W. Keister, M. H. Upton, Y. Q. Cai, "*Performance of a Collimating L-shaped Laterally Graded Multilayer Mirror for the Ixs Analyzer System at NSLS-II*" Journal of Synchrotron Radiation **21**, 473-478 (2014).
57. K. Smith, J. Poulsen, G. Nyman, **A. Cunsolo**, and P. Rossky. "*Application of a New Ensemble Conserving Quantum Dynamics Simulation Algorithm to Liquid Para-Hydrogen and Ortho-Deuterium*", Journal of Chemical Physics **142**, 244113 (2015).
58. **A. Cunsolo**, "*The THz Spectrum of Density Fluctuations of Water: The Viscoelastic Regime"*, Advances in Condensed Matter Physics **2015**, 1-24 (2015).
59. D. Bolmatov, M. Zhernenkov, D. Zav'yalov, S. Stoupin, Y. Q. Cai, and **A. Cunsolo**, *"Revealing the Mechanism of the Viscous-to-Elastic Crossover in Liquids",* Journal of Physical Chemistry Letters **6**, 3048–3053 (2015).
60. **A. Cunsolo**, "*The THz Spectrum of Density Fluctuations of Water: The Viscoelastic Regime"*, Advances in Condensed Matter Physics **2015**, 1-24 (2015).
61. **A. Cunsolo**, Yan Li, C. N. Kodituwakku, S. Wang, D. Antonangeli, F. Bencivenga, A. Battistoni, R. Verbeni, S. Tsutsui, A. Q. R. Baron, H.-K. Mao, D. Bolmatov, Y. Q. Cai, "*Signature of a Polyamorphic Transition in the THz Spectrum of Vitreous GeO_2*" Scientific Reports **5**, 14996 (2015).
62. D. Bolmatov, M. Zhernenkov, D. Zav'yalov, S. Tkachev, **A. Cunsolo**, Y. Q. Cai, "*The Frenkel Line: A Direct Experimental Evidence for the New Thermodynamic Boundary"*, Scientific Reports **5**, 15850 (2015).
63. A. Suvorov, **A. Cunsolo**, O. Chubar, Y. Cai, "*Ultra High Energy Resolution Focusing Monochromator for Inelastic X-ray Scattering Spectrometer*", Optics Express **23**, 31607-31618 (2015).
64. **A. Cunsolo**, A. Suvorov, Y. Q. Cai, "T*he Onset of Shear Modes in the High Frequency Spectrum of Simple Disordered Systems: Current Knowledge and Perspectives*", Philosophical Magazine, **96**, 732-742 (2016).
65. D. Bolmatov, M. Zhernenkov, Dmitry Zav'yalov, Stanislav Stoupin, **A. Cunsolo**, Y. Q. Cai, "*Thermally Triggered Phononic Gaps in Liquids"*, Scientific Reports **6**, 19469 (2016).
66. **A. Cunsolo**, "*The Spectrum of Density Fluctuations of Noble Gases Probed by THz Neutron and X-Ray Spectroscopy"*, Applied Sciences **6**, 64 (2016).
67. M. Zhernenkov, D. Bolmatov, D. Soloviov, K. Zhernenkov, B. P. Toperverg, **A. Cunsolo**, A. Bosak, and Y. Cai, "*Revealing the Mechanism of Passive Transport in Lipid Bilayers via Phonon-Mediated Nanometer-Scale Density Fluctuations*", Nature Communications **7**, 11575 (2016).
68. D. Bolmatov, M. Zhernenkov, D. Zav'yalov, Y.Q. Cai, **A. Cunsolo**, "*Terasonic Excitations in 2D Gold Nanoparticle Arrays in a Water Matrix as Revealed by Atomistic Simulations*", Journal of Physical Chemistry C **120**, 19896–19903 (2016).
    S. Bellissima, S. De Panfilis, U. Bafile, **A. Cunsolo**, M. A. Gonzalez, E. Guarini, F. Formisano, "*The Hydrogen-Bond Collective Dynamics in Liquid Methanol*", Scientific Reports **6**, 39533 (2017).
69. D. Bolmatov, M. Zhernenkov, L. Sharpnack, D. M. Agra-Kooijman, S. Kumar, A. Suvorov, R. Pindak, Y. Q. Cai, **A. Cunsolo**, "*Emergent Optical Phononic Modes upon Nanoscale Mesogenic Phase Transitions*", Nano Letters **17**, 3870–3876 (2017).
70. **A Cunsolo**, "*The Terahertz Dynamics of Simplest Fluids Probed by Inelastic X-Ray Scattering*", International Reviews in Physical Chemistry **36**, 433-539 (2017).
71. S. Bellissima, M. A. González, U. Bafile, **A. Cunsolo**, F. Formisano, S. De Panfilis, E. Guarini, "*Switching off Hydrogen-bond-driven Excitation Modes in Liquid Methanol*", Scientific Reports **7**, 10057 (2017).
72. A. De Francesco, L. Scaccia, M. Maccarini, F. Formisano, Y. Zhang, O. Gang, D. Nykypanchuk, A. H. Said, B. M. Leu, A. Alatas, Y. Q. Cai, **A. Cunsolo**, "*Damping Off Terahertz Sound Modes of a*

Liquid Upon Immersion of Nanoparticles", ACS Nano **12**, 8867-8874 (2018).

73. A. De Francesco, L. Scaccia, M. Maccarini, F. Formisano, E. Guarini, U. Bafile, **A. Cunsolo**, "*Interpreting the Terahertz Spectrum of Complex Materials: The Unique Contribution of the Bayesian Analysis"*, Materials **12**, 2914 (2019).
74. A. De Francesco, L. Scaccia, F. Formisano, M. Maccarini, F. De Luca, A. Parmentier, A. Alatas, A. Suvorov, Y. Q. Cai, R. Li, A. Cunsolo, "*Shaping the Terahertz Sound Propagation in Water under Highly Directional Confinement*", Physical Review **B 101**, 054306 (2020).
75. A. De Francesco, L. Scaccia, F. Formisano, E. Guarini, U. Bafile, M. Maccarini, A. Alatas,Y. Q. Cai, **A. Cunsolo**, *"The Terahertz Dynamics of an Aqueous Nanoparticle Suspension: An Inelastic X-ray Scattering Study",* Nanomaterials **10**, 860 (2020).
76. A. De Francesco, L. Scaccia, F. Formisano, E. Guarini, U. Bafile, M. Maccarini, A. Alatas, Y. Q. Cai, D. Nykypanchuk, **A. Cunsolo**, "*Onset of Interfacial Waves in the Terahertz Spectrum of a Nanoparticle Suspension*" Physical Review E **102,** 022601 (2020).
77. T. Nguyen, N. Andrejevic, H. C. Po, Y. Tsurimaki, A. Alatas, E. Alp, B. M. Leu, **A. Cunsolo**, Y. Cai, L. Wu, J. A. Garlow, Y. Zhu, H. Lu, A. Gossard, S. Huang, and M. Li, "*Signature of Many-Body Localization of Phonons in Strongly Disordered Superlattices*", Nano Letters **21**, 7419–7425 (2021).
78. A. De Francesco, U. Bafile, **A. Cunsolo**, L. Scaccia, E. Guarini, "*Searching for a second excitation in the inelastic neutron scattering spectrum of a liquid metal: a Bayesian analysis*". Scientific Reports **11**, 13974 (2021).
79. A. De Francesco, L. Scaccia, F. Formisano, E. Guarini, U. Bafile, M. Maccarini, Y. Zhang, D. Nykypanchuck, A. Alatas, **A. Cunsolo**, "*The damping of terahertz acoustic modes in aqueous nanoparticle suspensions*", Scientific Reports **11**. 20110 (2022).
80. E. Guarini, F. Barocchi, A. De Francesco, F. Formisano, A. Laloni, U. Bafile, M. Celli, D. Colognesi, R. Magli, **A. Cunsolo**, M. Neumann, "Collective dynamics of liquid deuterium: Neutron scattering and approximate quantum simulation methods", Physical Review B **104**, 174204 (2021).
81. A De Francesco, F Formisano, L Scaccia, E Guarini, U Bafile, M Maccarini, D. Nykypanchuck, A. Suvorov, Y. Q Cai, S. T. Lynch, **A. Cunsolo** "*Altering Terahertz Sound Propagation in a Liquid upon Nanoparticle Immersion*", Nanomaterials **12**, 2401 (2022).
82. E. Guarini, M. Neumann, A. De Francesco, F. Formisano, **A. Cunsolo**, W. Montfrooij, D. Colognesi, U. Bafile, "*Onset of collective excitations in the transverse dynamics of simple fluids"*, Physical Review E **107**, 014139 (2022).
83. A. De Francesco. L. Scaccia, F. Formisano, E. Guarini, U. Bafile, D. Nykypanchuk, A. Alatas, M. Li, S. T. Lynch. **A. Cunsolo**, "*The Effect of Embedded Nanoparticles on the Phonon Spectrum of Ice: An Inelastic X-ray Scattering Study*", Nanomaterials, **13**, 918, (2023).
84. A. De Francesco, L. Scaccia, F. Formisano E. Guarini, U. Bafile, A. Alatas, S. T. Lynch, A. **Cunsolo**, "*Ice phonon spectra and Bayes inference: a gateway to a new understanding of terahertz sound propagation in water*", Journal of Chemical Physics **158**, 134509 (2023).
85. E. Guarini, U. Bafile, D. Colognesi, **A. Cunsolo**, A. De Francesco, F. Formisano, W. Montfrooij, M. Neumann, F. Barocchi, "*Role of the single-particle dynamics in the transverse current autocorrelation function of a liquid meta*l", Journal of Chemical Physics **158**, 234501 (2023).
86. A. De Francesco, F. Formisano, L. Scaccia, E. Guarini, U. Bafile, M.A. González, A. Alatas, S. T. Lynch, **A. Cunsolo**, "*Fingerprints of hydrogen bonding in the terahertz dynamics of ethanol and water: an Inelastic X-Ray Scattering study*", Journal of Chemical Physics, **159**, 244501 (2023).
87. **A. Cunsolo**, "*Inelastic X-ray Scattering as a Probe of Terahertz Phonon Propagation in Nanoparticle Suspensions*", Applied Sciences **14**, 3377 (2024).
88. S.T. Lynch, A. De Francesco, L. Scaccia, A. Suvorov, Y.Q. Cai, D.M. Agra-Kooijman, L.L. Sharpnack, Satyendra Kumar, **A Cunsolo**, "*Shear Wave Propagation in a Liquid Crystal: An Inelastic X-ray Scattering Study*", Journal of Chemical Physics, **160**, 234505 (2024).

BOOKS AUTHORED/EDITED AND CHAPTERS IN EDITED BOOKS

89. **A. Cunsolo,** *Using X-ray as a Probe of the Terahertz Dynamics of Disordered Systems – Complementarity with Inelastic Neutron Scattering and Future Perspectives* Chapter 2 of Neutron Scattering Edited by W. A. Monteiro, ISBN 978-953-51-2276-0, 156 pages, Publisher: InTech (2016).
90. **A. Cunsolo,** *Inelastic X Ray Scattering as a Probe of the Transition Between the Hydrodynamic and the Single Particle Regimes in Simple Fluids* Chapter 2 of the book "*X Ray Scattering*" edited by A. E. Ares, Publisher: InTech (2016).
91. **A. Cunsolo**, "*What* IXS *Measures Exactly*" Chapter 1 of the book "*High-Resolution Inelastic X Ray Scattering*" Edited by A. Cunsolo, Publisher: InTech.
92. A. De Francesco, L. Scaccia **A. Cunsolo**, "*Bayesian approach for X-ray and Neutron scattering spectroscopy*" Chapter 2 of the book "High-Resolution Inelastic X Ray Scattering" Edited by A. Cunsolo, Publisher: InTech.
93. **A. Cunsolo**, editor of the book "*Inelastic X Ray Scattering and X-Ray Diffraction Applications*" Publisher: InTech.
94. **A. Cunsolo**, "High-Resolution Inelastic X-Ray Scattering: A Probe of Microscopic Density Fluctuations in Simple Fluids", chapter of the book "*Inelastic X Ray Scattering and X-Ray Diffraction Applications*", published online.
95. De Francesco, **A. Cunsolo**, L. Scaccia, "*Bayesian Approach for X-Ray and Neutron Scattering Spectroscopy*", chapter of the book "*Inelastic X Ray Scattering and X-Ray Diffraction Applications*", Editor: InTechOpen.
96. **A. Cunsolo**, "*The THz Dynamics of Liquids Probed by Inelastic X Ray Scattering*" (book) Publisher: World Scientific Publishing Co./ Imperial College Press, Tentative number of page: 330 The book is currently being copyedited. Issue foreseen by November, 2020.
97. A De Francesco, L Scaccia, M Bohem, A Cunsolo "*Bayesian Inference as a Tool to Optimize Spectral Acquisition in Scattering Experiments*" Chapter in the book "Bayesian Inference - Recent Advantages" edited by N. Tang- Publisher: InTechOpen (2022).
98. M. Boehm, D. E. Perryman, A. De Francesco, L. Scaccia, **A. Cunsolo**, T. Weber, Y. LeGoc, P. Mutti. "*Autonomous Neutron Experiments*"- First Chapter of the book: 'Methods and Applications of Autonomous Experimentation". Editors: M. M. Noack and Daniela Ushizima. In press.

CONFERENCE PROCEEDINGS

99. R. Senesi, C. Andreani, D. Colognesi, **A. Cunsolo** and M. Nardone *"Kinetic Energy in Solid 3He from Deep Inelastic Neutron Scattering*", Proc. Societa' Italiana di Fisica, Italy, 2001, Societa' Italiana di Fisica, Atti di Conferenze **76**, 97 (2001).
100. Y. P. Stetsko, J. W. Keister, A. Suvorov, D. S. Coburn, C. N. Kodituwakku, **A. Cunsolo** and Y. Cai, "*Dynamical Modeling of High-Energy-Resolution X-Ray optics*", Proceedings SPIE **8141**, 81410R (2011).
101. Y. Q. Cai, D. S. Coburn, **A. Cunsolo**, J. W. Keister, M. G. Honnicke, X. R. Huang, C. N. Kodituwakku, Y. Stetsko, A. Suvorov, N. Hiraoka, K. D. Tsuei, and H. C. Wille, "*The Ultrahigh Resolution* IXS *Beamline of NSLS-II: Recent Advances and Scientific Opportunities",* Journal of Physics: Conference Series **425**, 202001/1-7 (2013).
102. J. W. Keister, A. Suvorov, D. S. Coburn, **A. Cunsolo**, C. N. Kodituwakku, Y. Stetsko, and Y. Q. Cai, *"Realizing an Analyzer Instrument for Medium-energy Sub-meV* IXS*",* Journal of Physics: Conference Series **425**, 052032/1-4 (2013).
103. A. Suvorov, D.S. Coburn, **A. Cunsolo**, J.W. Keister, Y.Q. Cai, "*Simulation of the Ultrahigh Energy Resolution IXS Analyzer System at NSLS-II* " Proc. SPIE 9209, Advances in Computational Methods for X-Ray Optics III, 92090Y (2014).
104. S. T. Lynch. A. De Francesco, L. Scaccia, **A. Cunsolo**, *"Controlling terahertz sound propagation: some preliminary Inelastic X-Ray Scattering results" European Journal of Physics Web of Conferences.*
105. S. T. Lynch, A. De Francesco, L. Scaccia, **A. Cunsolo** *"Controlling terahertz sound*

propagation: some preliminary Inelastic X-Ray Scattering result" EPJ Web of Conferences **272**, 01010 (2022).

106. E. Guarini, G. Masini, U. Bafile, M. Celli, D. Colognesi, **A. Cunsolo**, L. Scaccia, A. De Francesco, F. Formisano, *Open problems in liquids dynamics: the role of neutron scattering"*, EPJ Web of Conferences, **286**, European Conference on Neutron Scattering 2023 (ECNS 2023).

OTHER PUBLICATIONS

107. **A. Cunsolo,** "*Structural and Microscopic Relaxations in Glycerol: An Ixs Study*" Bulletin of the American Physical Society-APS March Meeting 2012 Vol. 57, N. 1.
108. **A. Cunsolo**, "*Relaxation Phenomena in the Thz Dynamics of Simple Fluids Probed by Inelastic X Ray Scattering*", PhD Thesis, Universite' J. Fourier, Grenoble, France.
109. A. Mermet, **A. Cunsolo**, E. Duval , M. Krisch, C. Masciovecchio, S. Perghem, G. Ruocco, F. Sette, R. Verbeni and G. Viliani, "*Pressure-induced In-glass Structural Transformation in the Amorphous Polymer Poly(Methyl Methacrylate)"*, ESRF Highlights 1996/1997.
110. C. Masciovecchio, G. Monaco, G. Ruocco, F. Sette, **A. Cunsolo**, M. Krisch, A. Mermet, M. Soltwisch and R. Verbeni, "*"High Frequency Dynamics of Glass Forming Liquids at the Glass Transition"*, ESRF Highlights 1996/1997.
111. **A. Cunsolo**, G. Pratesi, G. Ruocco, M. Sampoli, F. Sette, R. Verbeni, F. Barocchi, M. Krisch, C. Masciovecchio and M. Nardone,"*The Dynamics of Dense Super-critical Neon at the Transition from Hydrodynamical to Single Particle Regimes*", ESRF Highlights 1997/1998.
112. T. Scopigno, U. Balucani, **A. Cunsolo**, C. Masciovecchio, G. Ruocco, F. Sette and R. Verbeni "*Observation of Umklapp Processes in Non Crystalline Materials*", ESRF Highlights 2000.
113. **A. Cunsolo**, G. Ruocco, F. Sette, C. Masciovecchio, A. Mermet, G. Monaco, M. Sampoli and R. Verbeni, "*Experimental Determination of the Structural Relaxation in Liquid Water*", ESRF Highlights 1999.
114. F. Sette, G. Ruocco, **A. Cunsolo**, C. Masciovecchio, G. Monaco and R. Verbeni, "*Determination of the Short-wavelength Propagation-threshold in the Collective Excitations of Liquid Ammonia*", ESRF Highlights 2000.
115. P. Mariani, M. Pisani, C. Ferrero, **A. Cunsolo** and T. Narayanan, *"Small angle X Ray Diffraction Study of Monoolein under Pressure: Stability and Energetics of Pn3m and 1a3d Bicontinuous Cubic Phases",* ESRF Newsletter **34**, 21 (2000).
116. G. Monaco, **A. Cunsolo**, G. Pratesi, F. Sette and R. Verbeni, "*Deep Inelastic Atomic Scattering of X-rays in Liquid Neon*", ESRF Highlights 2002.
117. D. Aisa, E. Babucci, F. Barocchi, **A. Cunsolo**, F. D'Anca, F. Formisano, T. Gahl, E. Guarini,
118. S. Jahn, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, F. Sacchetti, J.-B. Suck, G. Venturi, *"Small-angle Spectroscopy at Thermal Energies: The Brisp Project at ILL",* ILL Annual Report 2004.
119. F. Bencivenga, **A. Cunsolo**, M. Krisch, G. Monaco, L. Orsingher, G. Ruocco, F. Sette and A.Vispa "*Structural and Collisional Relaxations in Liquids and Supercritical Fluids*", ESRF Highlights 2007.
120. Y. Shvyd'ko, S. Stoupin, **A. Cunsolo**, A. H. Said and X. Huang, "*Discovering New Talents for Diamond*"- APS Highlights 2010.
121. **A. Cunsolo**, "*The Surprising Ooze Factor of Glass*" - NSLS Highlight 2012.
122. M. Zhernenkov, D. Bolmatov, D. Soloviov, K. Zhernenkov, B.P. Toperverg, **A. Cunsolo**, A. Bosak, and Y.Q. Cai,"*Phonon Mediated Passive Transport of Solutes in Lipid Membranes*", ESRF Highlights 2016.
123. M. Zhernenkov, D. Bolmatov, D. Soloviov, K. Zhernenkov, B.P. Toperverg, **A. Cunsolo**, A. Bosak, and Y.Q. Cai, "*Phonon Mediated Passive Transport of Solutes in Lipid Membranes*" , DoE Highlight 2016.
124. D. Bolmatov, M. Zhernenkov, L. Sharpnack, D. M. Agra-Kooijman, S. Kumar, A. Suvorov, R. Pindak, Y. Q. Cai, **A. Cunsolo**,"*X-Ray Study Reveals Way to Control Molecular Vibrations*

That Transmit Heat" - DoE Highlight 2017.

125. S. Bellissima, S. De Panfilis, U. Bafile, **A. Cunsolo**, M. A. Gonzalez, E. Guarini, F. Formisano, "*The Hydrogen-bond Collective Dynamics in Liquid Methanol"*- ILL Annual Reports 2017.
126. A. De Francesco, L. Scaccia, B. R. Lennox, E. Guarini, U. Bafile, P. Falus, M. Maccarini **A. Cunsolo**, "*A Bayesian Approach for the Study of Time Correlation Functions in a Soft Complex System*"- ILL Annual Reports 2019.
127. A. De Francesco, L. Scaccia, F. Formisano., E. Guarini, U. Bafile, D. Nykypanchuk, A. Alatas, M. Li, S.T. Lynch, **A. Cunsolo**, *"Nanoparticles impact how high-frequency sound propagates through ice",* APS Highlights 2023.