

Rapporti tecnici e pubblicazioni non-ISI

- 1. BRISP - A New Thermal Neutron Brillouin Scattering Spectrometer at the Institut Laue-Langevin**
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, W.-C. Pilgrim, A. Orecchini, C. Petrillo, F. Sacchetti, J.-B. Suck, G. Venturi, *Notiziario Neutroni e Luce di Sincrotrone*, Vol. 10, No. 1, pag. 18 (2005).
- 2. Small-angle spectroscopy at thermal energies: the BRISP project at ILL**
The BRISP Team, ILL-Annual Report 2004.
- 3. BRISP: monochromatic beam on the detector**
The BRISP Team, ILL-News, N. 42, pag. 6, Dicembre 2004.
- 4. Big and Small INFM Initiatives for Neutrons during 2002**
C. Petrillo, *Notiziario Neutroni e Luce di Sincrotrone*, Vol. 8, No. 2, pag. 43 (2003).
- 5. Collective excitations in liquid metal alloys K-Cs**
L. E. Bove, C. Petrillo, F. Sacchetti, B. Dorner, *Scientific Highlights, ILL Annual Report 2000*, 40 (2001).
- 6. The sound of water**
C. Petrillo, in "Exploring Matter with Neutrons" - Highlights in Research at the ILL - Edition 2000, page 12.
- 7. High resolution Brillouin neutron scattering from heavy water**
C. Petrillo, F. Sacchetti, B. Dorner, J.-B. Suck, *Scientific Highlights, ILL Neutron Report* 99, 26 (2000).
- 8. The silicon/gadolinium detector for thermal neutrons: current status and future perspectives**
C. Petrillo, *Notiziario Neutroni e Luce di Sincrotrone*, Vol. 4, No. 1, pag. 14 (1999).
- 9. Optimisation of PRISMA at ISIS for cold neutron single crystal spectroscopy**
M. J. Bull, M. J. Harris, M. Hagen, U. Steigenberger, C. Petrillo, F. Sacchetti, K. A. McEwen, *Proc. ICANS-XIV* (1998).
- 10. Crystalline Si diodes as neutron detectors: test measurements at the pulsed source ISIS**
C. Petrillo, F. Sacchetti, M. W. Johnson e N. J. Rhodes, *Rapporto Interno RAL, RAL-TR-97-010* (1997).
- 11. Future Opportunities and Present Possibilities for Coherent Inelastic Single Crystal Measurements on Pulsed Neutron Sources**
M. Hagen, U. Steigenberger, C. Petrillo e F. Sacchetti, *Rapporto Interno RAL, RAL-95-006* (1995).
- 12. Rivelatori a stato solido per neutroni**
C. Petrillo, *Notiziario Neutroni*, Vol. 4, No. 1, pag. 34 (1994).
- 13. Double-Crystal Analyser System for the PRISMA Spectrometer: Test of a Prototype**
C. Petrillo, F. Sacchetti, M. Hagen e U. Steigenberger, *Rapporto Interno RAL, RAL-93-091* (1993).
- 14. Competizione tra accoppiamento ferromagnetico e antiferromagnetico in leghe dei metalli 3d in fase gamma**
C. Petrillo, *Notiziario Neutroni*, Vol. 3, No. 1, pag. 16 (1993).
- 15. Plastic deformation and resulting reflectivity of germanium crystals to be employed as analysers for PRISMA spectrometer**
C. Petrillo e A. Freund, *Rapporto Interno ISM 1987/1*.
- 16. Small size collimators for thermal neutron scattering**
E. Di Fabrizio, C. Petrillo e F. Sacchetti, *Rapporto Interno ISM 1987/3*.
- 17. PRISMA: a spectrometer for the measurement of coherent excitations on a pulsed spallation neutron source**
C. Andreani, C. J. Carlile, F. Cilloco, C. Petrillo, F. Sacchetti, G. C. Stirling e C. G. Windsor, *Rapporto Interno RAL-86-026* (1986).
- 18. Deformazione plastica di cristalli di germanio da impiegare come analizzatori nello spettrometro PRISMA per neutroni**
C. Petrillo e A. Freund, *Rapporto Interno ISM, 1986/1*.
- 19. Easily-handled techniques for polarising neutrons**
P. Bisanti, C. Petrillo e F. Sacchetti, *Rapporto Interno ISM 1986/3*, presentato al II Meeting Internazionale della Collaborazione ISIS, Rapallo, Novembre 1986.
- 20. Polarisation analysis in crystal analyser spectrometers**
P. Bisanti, C. Petrillo e F. Sacchetti, *Rapporto Interno ISM 1986/4*, presentato al II Meeting Internazionale della Collaborazione ISIS, Rapallo, Novembre 1986.
- 21. Project for the construction of the spectrometer PRISMA for the Spallation Neutron Source**
C. Andreani, F. Cilloco, C. Petrillo, F. Sacchetti e C. G. Windsor, *Rapporto Interno ISM, 1985/3*.
- 22. Final mechanical specification of the spectrometer PRISMA for the Spallation Neutron Source**
C. Andreani, F. Cilloco, C. Petrillo, F. Sacchetti e C. G. Windsor, *Rapporto Interno ISM, 1985/4*.
- 23. Accordo CNR-SRC per l'accesso italiano alla SNS**
C. Andreani, C. Petrillo e F. Sacchetti (1984), presentato al Comitato Fisica del CNR.

Pubblicazioni

1. *Calculated dispersion and lifetime of one-electron states in Copper*
C. Petrillo, F. Sacchetti, Solid State Communications **50**, 521 (1984).
2. *Electron-electron interaction and single particle properties in Copper. II Compton profile*
C. Petrillo, F. Sacchetti, Journal of Physics F: Metal Physics **15**, 91 (1985).
3. *Calculated spectral weight function in Aluminum*
C. Petrillo, F. Sacchetti, Nuovo Cimento D **5**, 14 (1985).
4. *A simple model of local density approximation in non-conducting systems. Application to Argon and Silicon*
C. Petrillo, Nuovo Cimento D **6**, 142 (1985).
5. *Quasi-particle properties in Beryllium in the local density approximation*
C. Petrillo, F. Sacchetti, Journal of Physics F: Metal Physics **15**, 2297 (1985).
6. *Neutron scattering determination of the local magnetic form factors in equiatomic CoNi alloy*
C. Petrillo, F. Sacchetti, Solid State Communications **60**, 981 (1986).
7. *Spin density in Co₆₅Pd₃₅ alloy*
C. Petrillo, F. Sacchetti, Nuovo Cimento D **7**, 46 (1986).
8. *The structure of liquid sulphuric acid*
C. Andreani, C. Petrillo, F. Sacchetti, Molecular Physics **58**, 299 (1986).
9. *Experimental structure factor of liquid mercury by neutron diffraction*
P. Bosi, C. Petrillo, Nuovo Cimento D **8**, 285 (1986).
10. *On the possibility of determining the dielectric function from neutron and x-ray scattering*
C. Petrillo, F. Sacchetti, Journal of Physics F: Metal Physics **16**, L283 (1986).
11. *PRISMA: A spectrometer for the measurement of coherent excitations on a pulsed spallation neutron source*
C. Andreani, C. J. Carlile, F. Cilloco, C. Petrillo, F. Sacchetti, G. C. Stirling, C. G. Windsor, Nuclear Instruments and Methods A **254**, 333 (1987).
12. *Neutron scattering off electrons in simple metals: a band structure calculation for sodium*
J. A. Blackman, C. Petrillo, K. N. Trohidou, J. F. Cooke, S. W. Lovesey, F. Sacchetti, Journal of Physics C: Solid State Physics **20**, 3887 (1987).
13. *On the calculation of the dynamic structure factor from band structure models: application to iron*
J. A. Blackman, K. N. Trohidou, C. Petrillo, J. F. Cooke, S. W. Lovesey, F. Sacchetti, Journal of Physics C: Solid State Physics **20**, 3897 (1987).
14. *Neutron diffraction evidence for substrate-triggered intermolecular interactions in the ribosomal protein IF-2*
S. Cannistraro, C. Petrillo, F. Sacchetti, R. Calogero, C. O. Gualerzi, Chemical Physics Letters **139**, 116 (1987).
15. *Neutron and x-ray diffraction patterns of aqueous sulphuric acid solutions*
C. Andreani, C. Petrillo, Molecular Physics **62**, 765 (1987).
16. *Possibility of electron-neutron emission spectroscopy*
C. Petrillo, F. Sacchetti, Physical Review B **36**, 9793 (1987).
17. *X-Ray diffraction structure of liquid hydrogen sulphide*
C. Andreani, C. Petrillo, D. Rocca, Europhysics Letters **5**, 145 (1988).
18. *Electron gas self-energy at metallic density*
C. Petrillo, F. Sacchetti, Physical Review B **38**, 3834 (1988).
19. *Density of vibrational states in hydrogen bonded crystals. Potassium dihydrogen phosphate*
C. Andreani, P. Bisanti, C. Petrillo, F. Sacchetti, B. C. Boland, Z. A. Bowden, A. D. Taylor, Molecular Physics **68**, 681 (1989).
20. *Hydration structure of ethanol water solution at low alcohol concentration*
C. Petrillo, G. Onori, F. Sacchetti, Molecular Physics **67**, 697 (1989).

21. *Spin density of ordered FeCo: a failure of the local spin density approximation*
E. Di Fabrizio, G. Mazzone, C. Petrillo, F. Sacchetti, *Physical Review B* **40**, 9502 (1989).
22. *Neutron excitation of bulk luminescence*
C. Petrillo, F. Sacchetti, *Physical Review B* **40**, 10611 (1989).
23. *A possible mechanism for bulk cold fusion in transition metal hydrides*
C. Petrillo, F. Sacchetti, *Europhysics Letters* **10**, 15 (1989).
24. *Neutron diffraction on the He-Xe mixture near the gas-gas demixing transition*
M. C. Bellissent-Funel, U. Buontempo, C. Petrillo, F. P. Ricci, *Physical Review A* **40**, 7346 (1989).
25. *Form factor determination in amorphous ferromagnetic systems. Application to $Fe_{78}B_{13}Si_9$*
C. Petrillo, F. Sacchetti, *Solid State Communications* **74**, 543 (1990).
26. *Iron magnetic moments and spin density asphericity in $Fe_3(Al_xSi_{1-x})$ alloys*
L. Dobrzynski, C. Petrillo, F. Sacchetti, *Physical Review B* **42**, 1142 (1990).
27. *Analysis of neutron scattering data in the case of high-scattering cells*
C. Petrillo, F. Sacchetti, *Acta Crystallographica A* **46**, 6, (1990).
28. *Structure of liquid chlorine from neutron diffraction measurements*
M. C. Bellissent-Funel, U. Buontempo, C. Petrillo, F. P. Ricci, *Molecular Physics* **71**, 253, (1990).
29. *Orientalional correlations in liquid CO: neutron diffraction measurements*
M. C. Bellissent-Funel, U. Buontempo, C. Petrillo, F. P. Ricci, *Molecular Physics* **71**, 239, (1990).
30. *Debye-Waller factor determination in $Ga_xAl_{1-x}As$ superlattice*
C. Petrillo, F. Sacchetti, E. Di Fabrizio, A. Cricenti, S. Selci, *Solid State Communications* **77**, 83 (1991).
31. *The development of the PRISMA spectrometer at ISIS*
U. Steigenberger, M. Hagen, R. Caciuffo, C. Petrillo, F. Cilloco, F. Sacchetti, *Nuclear Instruments and Methods B* **53**, 87, (1991).
32. *Evaluation of electron-phonon coupling of $Al_{0.27}Ga_{0.73}As/GaAs$ quantum wells by normal incidence reflectance*
S. Selci, A. Cricenti, M. Righini, C. Petrillo, F. Sacchetti, F. Alexandre, G. Chiarotti, *Solid State Communications* **79**, 561 (1991).
33. *Structure factor measurements of liquid Cl_2 at high temperatures*
M. C. Bellissent-Funel, U. Buontempo, C. Petrillo, F. P. Ricci, *Molecular Physics* **74**, 1209 (1991).
34. *Spin density in $MnNi_{3.55}$: a magnetic state of fcc manganese*
C. Petrillo, F. Sacchetti, M. Scafi, *Physical Review B* **44**, 9418 (1991).
35. *Orientalional correlations in liquid chlorine*
M. C. Bellissent-Funel, U. Buontempo, C. Petrillo, F. P. Ricci, *Physica B* **174**, 237 (1991).
36. *Temperature dependence of lattice dynamics in lead*
F. Sacchetti, R. Caciuffo, C. Petrillo, U. Steigenberger, *Journal of Physics: Condensed Matter* **3**, 8759 (1991).
37. *Phonon softening in tantalum below 4.2 K*
F. Sacchetti, O. Moze, C. Petrillo, *Solid State Communications* **81**, 195 (1992).
38. *High resolution neutron powder diffraction studies of the low temperature crystal structure of molecular iodine (I_2)*
R. M. Ibberson, O. Moze, C. Petrillo, *Molecular Physics* **76**, 395 (1992).
39. *Low energy modes in OH- doped KBr investigated by inelastic neutron scattering*
G. Chiarotti, C. Petrillo, A. Scacco, *Physica B* **180 & 181**, 312 (1992).
40. *Antiferromagnetic alignment of Mn in ferromagnetic $MnNi_{3.55}$ alloy: state of order dependence*
C. Petrillo, F. Sacchetti, M. Scafi, *Journal of Magnetism and Magnetic Materials* **104-107**, 2015 (1992).
41. *Analysis of neutron scattering data in the case of high-scattering cells. II Complex cylindrical cells*
C. Petrillo, F. Sacchetti, *Acta Crystallographica A* **48**, 508 (1992).

42. *Neutron diffraction of liquid neon and xenon along the coexistence line*
M. C. Bellissent-Funel, U. Buontempo, A. Filabozzi, C. Petrillo, F. P. Ricci, *Physical Review B* **45**, 4605 (1992).
43. *Spin density and state of order in the alloy $Ni_{78}Mn_{22}$*
G. Mazzone, C. Petrillo, F. Sacchetti, M. Scafi, *Physical Review B* **46**, 11665 (1992).
44. *Optical-absorption studies of the excitonic linewidth in $GaAs/Ga_{0.73}Al_{0.27}As$ multiple quantum-well structure*
S. Selci, A. Cricenti, M. Righini, C. Petrillo, F. Sacchetti, F. Alexandre, G. Chiarotti, *Applied Surface Science B* **56-58**, 637 (1992).
45. *High resolution neutron powder diffraction investigation of the low temperature crystal structure of molecular-iodine (I₂)*
C. Petrillo, O. Moze, R. M. Ibberson, *International Conference on Neutron Scattering (ICNS 91) Physica B* **180**, 312 (1992).
46. *Relationship between structural properties and elastic anomalies in Ag/Ni superlattices*
G. Carlotti, A. Montone, C. Petrillo, M. Vittori Antisari, *Journal of Physics: Condensed Matter* **5**, 4611 (1993).
47. *High-temperature spin density of FeCo: effect of lattice vibrations on the electron distribution*
C. Petrillo, F. Sacchetti, *Journal of Magnetism and Magnetic Materials* **133**, 90 (1994).
48. *Temperature dependence of spin reversal in ordered Ni_3Mn : evidence for anomalous behaviour*
G. Mazzone, C. Petrillo, F. Sacchetti, *Physical Review B* **49**, 4307 (1994).
49. *Temperature dependence of phonon intensities in tantalum below 4.2K*
F. Sacchetti, C. Petrillo, O. Moze, *Physical Review B* **49**, 8747 (1994).
50. *Temperature dependence of spin density in FeCo alloy: magnetic response function*
C. Petrillo, F. Sacchetti, *Solid State Communications* **89**, 471 (1994).
51. *Structure factors in germanium at 0.342 and 1.382 MeV*
M. S. Dewey, E. G. Kessler, Jr., G. L. Greene, R. D. Deslattes, F. Sacchetti, C. Petrillo, A. Freund, H. G. Borner, S. Robinson, P. Schillebeeckx, *Physical Review B* **50**, 2800 (1994).
52. *Spin-dependent correlations in electron liquids: feasibility of magnetic x-ray scattering experiments*
C. Petrillo, F. Sacchetti, *Solid State Communications* **91**, 895 (1994).
53. *Production of non-crystalline magnetite by the cavitation technique*
P. Diodati, L. Mirri, C. Petrillo, F. Sacchetti, *Solid State Communications* **92**, 433 (1994).
54. *X-ray diffraction study of poly(3-n-decylpyrrole), polypyrrole and their monomers*
C. Petrillo, S. Borra, R. Cagnolati, G. Ruggeri, *Journal of Chemical Physics* **101**, 11004 (1994).
55. *Scattering of slow neutrons in nanocrystals*
C. Petrillo, in *Fundamental Properties of Nanostructured Materials*, pag. 75 (World Scientific, 1994).
56. *Electron-electron correlations in diamond: an x-ray-scattering experiment*
C. Petrillo, F. Sacchetti, *Physical Review B* **51**, 4755 (1995).
57. *Antiphase domain and magnetic interactions in partially ordered Ni_3Mn*
A. Paciaroni, C. Petrillo, F. Sacchetti, *Physical Review B* **52**, 3049 (1995).
58. *A double crystal analyser system for the PRISMA spectrometer*
C. Petrillo, F. Sacchetti, U. Steigenberger, M. Hagen, *Journal of Neutron Research* **3**, 93 (1996).
59. *Future opportunities and present possibilities for coherent inelastic single crystal measurements on pulsed neutron sources*
M. Hagen, U. Steigenberger, C. Petrillo, F. Sacchetti, *Journal of Neutron Research* **3**, 69 (1996).
60. *Medium and high energy x-ray instrument for sample characterization*
C. Petrillo, C. Rocchi, F. Sacchetti, *Review of Scientific Instruments* **67**, 693 (1996).
61. *Crystalline silicon diodes as neutron detectors: performances and perspectives*
C. Petrillo, F. Sacchetti, O. Toker, N. J. Rhodes, *Journal Neutron Research* **4**, 65 (1996).

62. *Solid state neutron detectors*
C. Petrillo, F. Sacchetti, O. Toker, N. J. Rhodes, Nuclear Instruments and Methods A **378**, 541 (1996).
63. *Sonochemical production of a non-crystalline phase of palladium*
P. Diodati, G. Giannini, L. Mirri, C. Petrillo, F. Sacchetti, Ultrasonics Sonochemistry **4**, 45 (1997).
64. *A novel double-crystal analyser system for the PRISMA spectrometer at ISIS*
M. J. Bull, M. J. Harris, U. Steigenberger, M. Hagen, C. Petrillo, F. Sacchetti, Physica B **234-236**, 1061 (1997).
65. *Spin density distribution in Ni₉₅Mn₅*
A. Paciaroni, C. Petrillo, F. Sacchetti, Solid State Communications **103**, 97 (1997).
66. *Temperature dependence of spin density in Ni₃Al: comparison with pure Ni*
A. Paciaroni, C. Petrillo, F. Sacchetti, Journal de Physique I **7**, 865 (1997).
67. *Synchrotron radiation study of dynamic magnetic scattering in beryllium*
C. Petrillo, F. Sacchetti, E. Babucci, M. Colapietro, A. Pifferi, Europhysics Letters **42**, 179 (1998).
68. *Relevance of charge-density measurements for high-precision calculations*
C. Petrillo, F. Sacchetti, G. Mazzone, Acta Crystallographica A **54**, 468 (1998).
69. *Si(111)/Gd: a fast and high-resolution thermal neutron detector*
C. Petrillo, Il Nuovo Cimento **20**, 931 (1998). Paper in honour of Prof. Gianfranco Chiarotti on the occasion of his 70th birthday.
70. *Space resolution of a Si/Gd microstrip as linear position-sensitive detector for thermal neutrons*
C. Petrillo, F. Sacchetti, G. Maehlum, M. Mancinelli, Nuclear Instruments and Methods A **424**, 523 (1999).
71. *X-ray measurement of the electron static structure factor in LiF*
G. Calzuola, C. Petrillo, F. Sacchetti, Physical Review B **59**, 12853 (1999).
72. *Forty years of polarized neutron scattering in ferromagnetic 3d metals and alloys*
C. Petrillo, F. Sacchetti, Neutron News **11**, No. 1, 35 (2000).
73. *A coincidence experiment of two coherent beams of thermal neutrons*
M. Iannuzzi, V. Merlo, A. Paciaroni, C. Petrillo, F. Sacchetti, Foundations of Physics Letters **13**, 1 (2000).
74. *An inverse geometry neutron scattering spectrometer with graphite venetian blind crystal analyser and a para-hydrogen filter*
C. Petrillo, F. Sacchetti, M. Celli, M. Zoppi, C. A. Checchi, Nuclear Instruments and Methods A **441**, 494 (2000).
75. *The double focussing monochromator of IN4C*
G. Cicognani, H. Mutka, D. Weddle, F. Sacchetti, C. Petrillo, E. Babucci, Physica B **276**, 85 (2000).
76. *Experimental study of the spin density of metastable fcc ferromagnetic Fe-Cu alloys*
L.E. Bove, C. Petrillo, F. Sacchetti, G. Mazzone, Physical Review B **61**, 9457 (2000).
77. *High resolution neutron scattering measurement of the dynamic structure factor of heavy water*
C. Petrillo, F. Sacchetti, B. Dorner, J.-B. Suck, Physical Review **E62**, 3611 (2000).
78. *Neutron investigation of collective excitations in liquid K-Cs alloys: the role of the electron density*
L. E. Bove, F. Sacchetti, C. Petrillo, B. Dorner, Physical Review Letters **85**, 5352 (2000).
79. *Neutron investigation of the ion dynamics in liquid mercury: evidence for collective excitations*
L. E. Bove, F. Sacchetti, C. Petrillo, B. Dorner, F. Formisano, F. Barocchi, Physical Review Letters **87**, 215504-1, (2001).
80. *Self and collective dynamics of liquid mercury*
L. E. Bove, F. Sacchetti, C. Petrillo, B. Dorner, F. Formisano, M. Sampoli, F. Barocchi, Philosophical Magazine B **82**, 365 (2002).
81. *A honeycomb collimator for the neutron Brillouin scattering spectrometer BRISP*
C. Petrillo, E. Guarini, F. Formisano, F. Sacchetti, E. Babucci, C. Campeggi, Nuclear Instruments and Methods A **489**, 304 (2002).
82. *Dynamic structure factor of liquid mercury*
L. E. Bove, F. Sacchetti, C. Petrillo, B. Dorner, F. Formisano, M. Sampoli, F. Barocchi, Journal of Non-Crystalline Solids **307**, 842 (2002).

83. *Giant electron-driven anomaly in the ion dynamics of a saturated solution of lithium in deuterated ammonia*
F. Sacchetti, E. Guarini, C. Petrillo, L. E. Bove, B. Dorner, F. Demmel, F. Barocchi, *Physical Review B* **67**, 014207 (2003).
84. *Neutron and X-ray scattering study of fully deuterated poly(3-n-decylpyrrole)*
A. Orecchini, C. Petrillo, G. Ruggeri, R. Cagnolati, *Journal of Chemical Physics* **118**, 7690 (2003).
85. *Fresnel Zone Plates for imaging and focusing of thermal and cold neutrons*
F. Sacchetti, M. Altissimo, C. Petrillo, E. Di Fabrizio, S. Colleoni, F. Ott, *Neutron News*, **14**, 37 (2003).
86. *Neutron scattering investigation of the low momentum collective ion dynamics in liquid potassium.*
L.E. Bove, B. Dorner, C. Petrillo, F. Sacchetti, J.-B. Suck, *Physical Review B***68**, 024208 (2003).
87. *Optimizing the Setup of the BRISP Spectrometer by Upgraded McStas Simulations*
G. Venturi, E. Guarini, F. Formisano, A. Orecchini, A. Cunsolo, C. Petrillo, F. Sacchetti, F. Barocchi, *Journal of Neutron Research*, **11**, 165 (2003).
88. *Fresnel zone plates as neutron optical elements*
M. Altissimo, E. Di Fabrizio, F. Ott, C. Petrillo, F. Sacchetti, *Nuclear Instruments and Methods A* **529**, 148 (2004).
89. *Zone plate for thermal neutron focusing: design, fabrication and first experimental tests*
M. Altissimo, C. Petrillo, F. Sacchetti, F. Ott, E. Di Fabrizio, *MicroElectronic Engineering* **73**, 644 (2004).
90. *Molecular dynamics simulations of liquid gallium at 320 and 970K*
L. E. Bove, F. Sacchetti, C. Petrillo, F. Formisano, M. Sampoli, F. Barocchi, *Philosophical Magazine* **84**, 1609 (2004).
91. *Fresnel zone plates as neutron optical elements for neutron imaging*
F. Sacchetti, M. Altissimo, C. Petrillo, E. Di Fabrizio, S. Colleoni, F. Ott, *Physica B* **350**, 447 (2004).
92. *Dynamic structure factor of vitreous germania*
E. Fabiani, L.E. Bove, A. Fontana, O. Pilla, C. Petrillo, *Physica B* **350**, 1099 (2004).
93. *Progress on the construction of the thermal neutron scattering spectrometer BRISP*
F. Formisano, E. Guarini, A. Orecchini, A. Cunsolo, S. Jahn, G. Venturi, H. Mutka, F. D'Anca, T. Gahl, D. Aisa, E. Babucci, A. Laloni, F. Barocchi, C. Petrillo, F. Sacchetti, J.-B. Suck, *Physica B* **350**, 795 (2004).
94. *Brillouin neutron scattering in heavy water: Evidence for two-mode collective dynamics.*
F. Sacchetti, J.-B. Suck, C. Petrillo, B. Dorner, *Physical Review E***69**, 061203 (2004).
95. *Vibrational dynamics of liquid gallium at 320K and 970K*
L. E. Bove, F. Formisano, F. Sacchetti, C. Petrillo, A. Ivanov, B. Dorner, F. Barocchi, *Physical Review B***71**, 014207 (2005).
96. *The development of the BRISP spectrometer at the Institut Laue-Langevin*
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, *Nuclear Instrument and Methods A* **544**, 620 (2005).
97. *Brillouin neutron scattering of ν -GeO₂*
L. E. Bove, E. Fabiani, A. Fontana, F. Paoletti, C. Petrillo, O. Pilla, I. C. V. Bento, *Europhysics Letters* **71**, 563 (2005).
98. *Self-dynamics of hydrogen gas as probed by means of inelastic neutron scattering*
Eleonora Guarini, Andrea Orecchini, Ferdinando Formisano, Franz Demmel, Caterina Petrillo, Francesco Sacchetti, Ubaldo Bafile, Fabrizio Barocchi, *Journal of Physics: Condensed Matter* **17**, 1 (2005).
99. *Magnetic states of iron in metastable fcc Fe-Cu alloys*
Orecchini, F. Sacchetti, C. Petrillo, P. Postorino, A. Congeduti, F. Baudelet, Ch. Giorgetti, G. Mazzone, *Journal of Alloys and Compounds* **424**, 27 (2006).
100. *Quasi-elastic neutron scattering investigation of the pressure dependence of molecular motions in liquid water*
A. Cunsolo, A. Orecchini, C. Petrillo, F. Sacchetti, *The Journal of Chemical Physics* **124**, 1 (2006).
101. *Pressure evolution of microscopic diffusion in liquid water*
A. Cunsolo, A. Orecchini, C. Petrillo and F. Sacchetti, *Journal of Neutron Research*, **14**, 309 (2006).

- 102.** *Electron-electron correlations in fullerene C_{60} probed by incoherent scattering of x rays*
C. Petrillo, F. Sacchetti, A. Orecchini, R. De Renzi, and M. Riccò, *Physical Review B* **74**, 085404 (2006).
- 103.** *The Brillouin spectrometer BRISP at the ILL*
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, G. Venturi, *Physica B* **385–386**, 1092 (2006).
- 104.** *BRISP: A new thermal-neutron spectrometer for small-angle studies of disordered matter*
D. Aisa, S. Aisa, E. Babucci, F. Barocchi, A. Cunsolo, A. De Francesco, F. Formisano, T. Gahl, E. Guarini, A. Laloni, H. Mutka, A. Orecchini, C. Petrillo, W.-C. Pilgrim, A. Piluso, F. Sacchetti, J.-B. Suck, G. Venturi, *Journal of Non-Crystalline Solids* **352**, 5130 (2006).
- 105.** *Role of charge doping and lattice distortions in codoped $Mg_{1-x}Al_xB_2$ compounds*
M. Monni, C. Ferdeghini, and M. Putti, P. Manfrinetti and A. Palenzona, M. Affronte, P. Postorino, M. Lavagnini, A. Sacchetti, and D. Di Castro, F. Sacchetti, C. Petrillo, and A. Orecchini, *Physical Review B* **73**, 214508 (2006).
- 106.** *Phonon-like dynamics in glasses: Coupling between damping and fragility*
Livia E. Bove, C. Petrillo, A. Fontana, A. Ivanov, C. Dreyfus, A.P. Sokolov, *Physica B* **385–386**, 16 (2006).
- 107.** *Development of Very High Rate and Resolution Neutron Detectors with Novel Readout and DAQ Hard- and Software in DETNI*
S. S. Alimov, A. Borga, A. Brogna, S. Buzzetti, F. Casinini, W. Dabrowski, T. Fiutowski, B. Gebauer, G. Kemmerling, M. Klein, B. Mindur, G. Modzel, C. Petrillo, F. Sacchetti, C. J. Schmidt, H. K. Soltveit, K. S. Solvag, R. Szczygiel, C. Schulz, C. Thielmann, U. Trunk, P. Wiacek, and T. Wilpert, *Nuclear Science Symposium Conference Record*, 2008. NSS '08 IEEE, pp1887 – 1900 (2008).
- 108.** *Evidence for the coexistence of two density fluctuation modes in molten $Li_{30}Bi_{70}$ as probed by neutron scattering*
L. E. Bove, F. Formisano, E. Guarini, A. Ivanov, C. Petrillo, F. Sacchetti, *Europhysics Letters* **79**, 16002 (2007).
- 109.** *High frequency dynamics of liquid bismuth*
L. Sani, L. E. Bove, C. Petrillo, F. Sacchetti, *Journal of non-crystalline solids* **353**, 3139 (2007).
- 110.** *On the anomalous behaviour of microscopic diffusion of liquid water*
A. Cunsolo, A. Orecchini, C. Petrillo, F. Sacchetti, *Journal of Physics: Condensed Matter* **19**, 415118 (2007).
- 111.** *Role of charge doping and lattice distortions in codoped $Mg_{1-x}(AlLi)_xB_2$ compounds*
M. Monni, M. Affronte, C. Bernini, D. Di Castro, C. Ferdeghini, M. Lavagnini, P. Manfrinetti, A. Orecchini, A. Palenzona, C. Petrillo, P. Postorino, A. Sacchetti, F. Sacchetti, M. Putti, *Physica C*, **460–462**, 598 (2007).
- 112.** *Coupled thermal fluctuations of proteins and protein hydration water on the picosecond timescale*
A. Paciaroni, A. Orecchini, E. Cornicchi, M. Marconi, C. Petrillo, M. Haertlein, M. Moulin, F. Sacchetti, *Philosophical Magazine* **88**, 4071 (2008).
- 113.** *Fingerprints of amorphous icelike behavior in the vibrational density of states of protein hydration water*
A. Paciaroni, A. Orecchini, E. Cornicchi, M. Marconi, C. Petrillo, M. Haertlein, M. Moulin, H. Schober, M. Tarek, F. Sacchetti, *Physical Review Letters* **101**, 148104 (2008).
- 114.** *Ion density fluctuations in liquid metals: the strongly interacting ion-electron plasma*
L. E. Bove, C. Petrillo, F. Sacchetti, *Condensed Matter Physics* **11**, 119 (2008).
- 115.** *Damping of sound waves in the terahertz range and strength of the boson peak*
L. E. Bove, C. Petrillo, A. Fontana, A. P. Sokolov, *Journal of Chemical Physics* **128**, 184502 (2008).
- 116.** *Neutron diffraction from macroscopic objects and transverse coherence of the wavefunction: The Fresnel zone plates*
M. Altissimo, C. Petrillo, F. Sacchetti, L. Sani, J. Stahn, *Nuclear Instruments and Methods in Physics Research – Section A* **586**, 68 (2008).
- 117.** *BRISP, a new small-angle time-of-flight neutron spectrometer to study collective dynamics in disordered matter*
A. Orecchini, W. C. Pilgrim, C. Petrillo, J. B. Suck, F. Sacchetti, *Condensed Matter Physics* **11**, 19 (2008).
- 118.** *Brillouin spectroscopy of protein hydration water: new experimental potentialities opened up by the thermal neutron spectrometer BRISP*
A. Orecchini, A. Paciaroni, A. De Francesco, L. Sani, M. Marconi, A. Laloni, E. Guarini, F. Formisano, C. Petrillo, F. Sacchetti, *Measurement Science and Technology* **19**, 034026 (2008).
- 119.** *BRISP: The New Brillouin Spectrometer at ILL's High Flux Reactor*
A. De Francesco, A. Laloni, F. Formisano, A. Orecchini, S. Aisa, E. Guarini, C. Petrillo, W. C. Pilgrim, J. B. Suck, L. Sani, D. Szubrin, G. Venturi, F. Sacchetti, *Neutron News* **19**, 10 (2008).

- 120. Correspondent's Report**
C. Petrillo, F. Sacchetti, *Neutron News* **19**, 8 (2008).
- 121. Collective Dynamics of Protein Hydration Water by Brillouin Neutron Spectroscopy**
A. Orecchini, A. Paciaroni, A. De Francesco, C. Petrillo, F. Sacchetti, *Journal of the American Chemical Society* **131**, 4664 (2009).
- 122. Ergodicity breaking in strong and network-forming glassy systems**
S. Caponi, M. Zanatta, A. Fontana, L. E. Bove, L. Orsingher, F. Natali, C. Petrillo, F. Sacchetti, *Physical Review B* **79**, 172201 (2009).
- 123. Structure and Acoustic Properties of Hydrated Nafion Membranes**
M. Plazenet, P. Bartolini, R. Torre, C. Petrillo, F. Sacchetti, *Journal of Physical Chemistry B* **113**, 10121 (2009).
- 124. Coupled relaxations at the protein-water interface in the picosecond time scale**
A. Paciaroni, E. Comicchì, M. Marconi, A. Orecchini, C. Petrillo, M. Haertlein, M. Moulin, F. Sacchetti, *Journal of the Royal Society Interface* **6**, S635 (2009).
- 125. Investigation of Li-doped MgB₂**
I. Pallecchi, P. Brotto, C. Ferdeghini, M. Putti, A. Palenzona, P. Manfrinetti, A. G. Lehmann, A. Orecchini, C. Petrillo, F. Sacchetti, M. Affronte, G. Allodi, R. De Renzi, S. Serventi, A. Andreone, G. Lamura, D. Daghero, R. S. Gonnelli, M. Tortello, *Superconductor Science & Technology* **22**, 095014 (2009).
- 126. Coherent neutron scattering study of confined water in nafion**
F. Sacchetti, A. Orecchini, A. Cunsolo, F. Formisano, C. Petrillo, *Physical Review B* **80**, 024306 (2009).
- 127. Interplay between Microscopic Diffusion and Local Structure of Liquid Water**
A. Cunsolo, A. Orecchini, C. Petrillo, et al., *Journal of Physical Chemistry B* **114**, 16713 (2010).
- 128. High-frequency dynamics of vitreous GeSe₂**
L. Orsingher, G. Baldi, A. Fontana, et al., *Physical Review B* **82**, 115201 (2010).
- 129. Collective density fluctuations of DNA hydration water in the time-window below 1 ps**
Elena Comicchì, Federico Sebastiani, Alessio De Francesco, Andrea Orecchini, Alessandro Paciaroni, Caterina Petrillo, Francesco Sacchetti, *The Journal of Chemical Physics* **135**, 025101 (2011).
- 130. Collective modes in a saturated lithium-ammonia solution as a probe of the response of the low-density homogeneous electron gas**
C. Petrillo, F. Sacchetti, E. Guarini, L. Bove, F. Demmel, *Physical Review B* **84**, 094206 (2011).
- 131. Debye to non-Debye scaling of the Boson peak dynamics: Critical behavior and local disorder in vitreous germania**
M. Zanatta, G. Baldi, S. Caponi, A. Fontana, C. Petrillo, F. Rossi, F. Sacchetti *The Journal of Chemical Physics* **135**, 174506 (2011).
- 132. ANTS: a simulation package for gas scintillation Anger-camera in thermal neutron imaging**
A. Morozov, I. Defendi, R. Engels, F.A.F. Fraga, M.M.F.R. Fraga, B. Guerard, M. Jurkovic, G. Kemmerling, G. Manzin, L.M.S. Margato, H. Niko, L. Pereira, C. Petrillo, F. Piscitelli, D. Raspino, N.J. Rhodes, F. Sacchetti, E.M. Schooneveld, P. Van Esch and K. Zeitelhack, 2001 IEEE Nuclear Science Symposium and Medical Imaging Conference, Book Series IEEE Nuclear Science Symposium Conference Record 1367-1373 (2011).
- 133. Pressure induced magnetic phase separation in La_{0.75}Ca_{0.25}MnO₃ manganite**
M. Baldini, L. Capogna, M. Capone, E. Arcangeletti, C. Petrillo, I. Goncharenko, P. Postorino, *J. Phys.: Condens. Matter* **24**, 045601 (2012).
- 134. Solid state detector for high spatial resolution coupled to a single event acquisition system for slow neutron detection**
F. Casinini, C. Petrillo, F. Sacchetti, *Nuclear Instruments and Methods in Physics Research A* **675** 1–7, (2012).
- 135. Vibrational Collective Dynamics of Dry Proteins in the Terahertz Region**
A. Paciaroni, A. Orecchini, M. Haertlein, M. Moulin, V. Conti Nibali, A. De Francesco, C. Petrillo, F. Sacchetti, *The Journal of Physical Chemistry B* **116** (12), 3861–3865 (2012).
- 136. Networking Properties of Cyclodextrin-Based Cross-Linked Polymers Probed by Inelastic Light-Scattering Experiments**
B. Rossi, S. Caponi, F. Castiglione, S. Corezzi, A. Fontana, M. Giarola, G. Mariotto, A. Mele, C. Petrillo, F. Trotta, G. Viliani, *The Journal of Physical Chemistry B* **116** (17), 5323–5327 (2012).

- 137.** *ANTS — a simulation package for secondary scintillation Anger-camera type detector in thermal neutron imaging*
A. Morozov, I. Defendi, R. Engels, F.A.F. Fraga, M.M.F.R. Fraga, B. Guerard, M. Jurkovic, G. Kemmerling, G. Manzin, L.M.S. Margato, H. Niko, L. Pereira, C. Petrillo, A. Peyaud, F. Piscitelli, D. Raspino, N.J. Rhodes, F. Sacchetti, E.M. Schooneveld, P. Van Esch and K. Zeitelhack, *Journal of Instrumentation* **7**, P08010 (2012).
- 138.** *High-pressure phases of crystalline tellurium: A combined Raman and ab initio study*
C. Marini, D. Chermisi, M. Lavagnini, D. Di Castro, C. Petrillo, L. Degiorgi, S. Scandolo, P. Postorino, *Physical Review B* **86**, 064103 (2012).
- 139.** *Neutron scattering investigation of high-frequency dynamics in glassy glucose*
N. Violini, A. Orecchini, A. Paciaroni, C. Petrillo, F. Sacchetti, *Physical Review B* **85**, 134204 (2012).
- 140.** *Vibrational density of states measurements in disordered systems*
N. Violini, E. Cornicchi, A. Orecchini, A. Paciaroni, C. Petrillo, F. Sacchetti, *Journal of Physics. Conference Series*. **340** 012082 (2012).
- 141.** *Water dynamics as affected by interaction with biomolecules and change of thermodynamic state: a neutron scattering study*
A. Orecchini, A. Paciaroni, C. Petrillo, F. Sebastiani, A. De Francesco, F. Sacchetti, *Journal of Physics. Condensed Matter* **24** 064105, (2012).
- 142.** *Brillouin Neutron Spectroscopy as a Probe to Investigate Collective Density Fluctuations in Biomolecules Hydration Water*
D. Russo, A. Orecchini, A. De Francesco, F. Formisano, A. Laloni, C. Petrillo, and F. Sacchetti, *Spectroscopy: An International Journal* **27** (5-6) 293-305 (2012).
- 143.** *A comparison between acoustic compliance and self-particle susceptibility in associated liquids: The case of water and glycerol*
L. Comez, S. Corezzi, A. Orecchini, A. Paciaroni, C. Petrillo, S. C. Santucci, F. Sacchetti, D. Fioretto, *Journal of Molecular Liquids* **176** 76 (2012).
- 144.** *Collective Dynamics of Intracellular Water in Living Cells*
A. Orecchini, F. Sebastiani, M. Jasnin, A. Paciaroni, A. De Francesco, C. Petrillo, M. Moulin, M. Haertlein, G. Zaccai, F. Sacchetti, *Journal of Physics. Conference Series* **340** 012091 (2012).
- 145.** *Inelastic Neutron Scattering Investigation in Glassy SiSe2: Complex Dynamics at the Atomic Scale*
M. Zanatta, A. Fontana, A. Orecchini, C. Petrillo, F. Sacchetti, *The Journal of Physical Chemistry Letters* **4** 1143 (2013).
- 146.** *Glassy Character of DNA Hydration Water*
A. Paciaroni, A. Orecchini, G. Goracci, E. Cornicchi, C. Petrillo, F. Sacchetti, *Journal of Physical Chemistry. B* **117** 2026 (2013).
- 147.** *Adaptive algorithms of position and energy reconstruction in Anger-camera type detectors: experimental data processing in ANTS*
A. Morozov, I. Defendi, R. Engels, F. A. F. Fraga, M. M. F. R. Fraga, A. Gongadze, B. Guerard, M. Jurkovic, G. Kemmerling, G. Manzin, L. M. S. Margato, H. Niko, L. Pereira, C. Petrillo, A. Peyaud, F. Piscitelli, D. Raspino, N. J. Rhodes, F. Sacchetti, E. M. Schooneveld, V. Solovov, P. Van Esch and K. Zeitelhack, *Journal of Instrumentation* **8** 05002 (2013).
- 148.** *Vibrational excitations of proteins and their hydration water in the far-infrared range*
A. Paciaroni, V. Conti Nibali, A. Orecchini, C. Petrillo, M. Haertlein, M. Moulin, M. Tarek, G. D'Angelo, F. Sacchetti, *Chemical Physics* **424** 80 (2013).
- 149.** *Collective THz dynamics in living Escherichia coli cells*
F. Sebastiani, A. Orecchini, A. Paciaroni, M. Jasnin, G. Zaccai, M. Moulin, M. Haertlein, A. De Francesco, C. Petrillo, F. Sacchetti, *Chemical Physics* **424** 84 (2013).
- 150.** *The Neutron Spectrometer BRISP: a New Approach to the Study of Excitations in Condensed Matter at Low Momentum Transfer*
F. Formisano, A. De Francesco, E. Guarini, A. Laloni, C. Petrillo, WC Pilgrim, D. Russo, F. Sacchetti, *Journal of the Physical Society of Japan* **82** SA028 (2013).
- 151.** *Water in a polymeric electrolyte membrane: Sorption/desorption and freezing phenomena*
M. Plazanet, F. Sacchetti, C. Petrillo, B. Deme, P. Bartolini, R. Torre, *Journal of Membrane Science* **453** 419 (2014).
- 152.** *IRIDE: Interdisciplinary research infrastructure based on dual electron linacs and lasers*
M. Ferrario et al., *Nuclear Instruments & Methods in Physics Research A* **740** 138 (2014).

- 153. *Melting of DNA Nonoriented Fibers: A Wide-Angle X-ray Diffraction Study***
F. Sebastiani, A. Pietrini, M. Longo, L. Comez, C. Petrillo, F. Sacchetti, A. Paciaroni, *Journal of Physical Chemistry B* **118** 3785 (2014).
- 154. *Terahertz Dynamics in Human Cells and Their Chromatin***
M. Longo, M. Marconi, A. Orecchini, C. Petrillo, G. Monaco, M. Calvitti, I. Pirisinu, R. Romani, F. Sacchetti, F. Sebastiani, M. Zanatta, A. Paciaroni, *Journal of Physical Chemistry Letters* **5** 2177 (2014).
- 155. *Determination of the interstitial electron density in liquid metals: Basic quantity to calculate the ion collective-mode velocity and related properties,***
L. Sani, C. Petrillo, F. Sacchetti, *Physical Review B* **90** 024207 (2014).
- 156. *Synthesis and test of sorbents based on calcium aluminates for SE-SR***
L. Barelli, G. Bidini, A. Di Michele, F. Gallorini, C. Petrillo, F. Sacchetti, *Applied Energy* **127** 81 (2014).
- 157. *Hydration-dependent dynamics of human telomeric oligonucleotides in the picosecond timescale: A neutron scattering study***
F. Sebastiani, M. Longo, A. Orecchini, L. Comez, A. De Francesco, M. Muthmann, S C M. Teixeira, C. Petrillo, F. Sacchetti, *The Journal of Chemical Physics* **143** 015102 (2015).
- 158. *Collective Ion Dynamics in Liquid Zinc: Evidence for Complex Dynamics in a Non-Free-Electron Liquid Metal***
M. Zanatta, F. Sacchetti, E. Guarini, A. Orecchini, A. Paciaroni, C. Petrillo, *Physical Review Letters* **114** 187801 (2015).
- 159. *He-3-free neutron detectors and their applications***
F. Sacchetti, N. Colonna, R. Faccini, B. Guerard, R. Hall-Wilton, C. Petrillo, A. Pietropaolo, N. Rhodes, L. Quintieri, M. Tardocchi, P. Valente, *European Physical Journal Plus* **130** 53 (2015).
- 160. *Vibrational dynamics changes of protein hydration water across the dynamic transition***
A. Paciaroni, A. Orecchini, F. Sebastiani, S. Capaccioli, M. Moulin, M. Haertlein, C. Petrillo, F. Sacchetti, *Journal of Non-Crystalline Solids* **407** 465 (2015).
- 161. *A large-area double rotating-crystal monochromator for time-focusing neutron instruments***
M. Zanatta, A. Orecchini, S. Aisa, F. Casinini, L. Farnesini, P. P. Deen, A. Paciaroni, C. Petrillo and F. Sacchetti, *Journal of Physics: Conference Series*, **746**, 012002 (2016).
- 162. *Temperature dependence of the surface plasmon resonance in small electron gas fragments, self-consistent field approximation***
C. Fasolato, F. Sacchetti, P. Tozzi, C. Petrillo, *Solid State Communications*, **260** 30 (2017).
- 163. *A high-flux upgrade for the BRISP spectrometer at ILL***
M. Zanatta, F. Barocchi, A. De Francesco, E. Farhi, F. Formisano, E. Guarini, A. Laloni, A. Orecchini, A. Paciaroni, C. Petrillo, W.-C. Pilgrim, J.-B. Suck, and F. Sacchetti, *Review of Scientific Instruments* **88**, 053905 (2017).
- 164. *Real-time observation of the isothermal crystallization kinetics in a deeply supercooled liquid***
M. Zanatta, L. Cormier, L. Hennem, C. Petrillo, F. Sacchetti, *Scientific Reports* **7**, 43671 (2017).