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E' autore (o co-autore) di oltre 200 articoli scientifici apparsi in riviste internazionali e libri (h index =33, oltre 4500 citazioni, Scopus). Vedi lista sotto.

Attuali interessi di ricerca:

Spettroscopia ottica, magnetica, neutronica e simulazioni di dinamica molecolare di sistemi amorfi e biologici.
Applicazione di AFM , AFS, STM e Raman SERS alla rilevazione di singole biomolecole, alla nanobiotecnologia e alla diagnostica medica precoce.

Bibliography (Salvatore Cannistraro)

Peer reviewed articles

1. Llauró A, Coppari E, Imperatori F, Bizzarri AR, Castón JR, Santi L, Cannistraro S, De Pablo PJ. Calcium ions modulate the mechanics of tomato bushy stunt virus. Biophys J 2015;109(2):390-7.

2. Baldacchini C, Kumar V, Bizzarri AR, Cannistraro S. Electron tunnelling through single azurin molecules can be on/off switched by voltage pulses. Appl Phys Lett 2015;106(18).

3. Yamada T, Signorelli S, Cannistraro S, Beattie CW, Bizzarri AR. Chirality switching within an anionic cell-penetrating peptide inhibits translocation without affecting preferential entry. Mol Pharm 2015;12(1):140-9.

4. Bizzarri AR, Cannistraro S. Antigen-antibody biorecognition events as discriminated by noise analysis of force spectroscopy curves. Nanotechnology 2014;25(33).

5. Lanzellotto C, Favero G, Antonelli ML, Tortolini C, Cannistraro S, Coppari E, Mazzei F. Nanostructured enzymatic biosensor based on fullerene and gold nanoparticles: Preparation, characterization and analytical applications. Biosens Bioelectron 2014;55:430-7.

6. Coppari E, Yamada T, Bizzarri AR, Beattie CW, Cannistraro S. A nanotechnological, molecular-modeling, and immunological approach to study the interaction of the anti-tumorigenic peptide p28 with the p53 family of proteins. Int J Nanomed 2014;9(1):1799-813.

7. Santini S, Bizzarri AR, Yamada T, Beattie CW, Cannistraro S. Binding of azurin to cytochrome c 551 as investigated by surface plasmon resonance and fluorescence. J Mol Recogn 2014;27(3):124-30.

8. Baldacchini C, Bizzarri AR, Cannistraro S. Excitation of the ligand-to-metal charge transfer band induces electron tunnelling in azurin. Appl Phys Lett 2014;104(9).

9. Xu X-, Su J-, Chen W-, Wang C-, Cannistraro S, Bizzarri A-. Steered molecular dynamics of an anticancer peptide interacting with the p53 DNA-binding domain. Prog Biochem Biophys 2014;41(6):598-609.

10. Santini S, Di Agostino S, Coppari E, Bizzarri AR, Blandino G, Cannistraro S. Interaction of mutant p53 with p73: A surface plasmon resonance and atomic force spectroscopy study. Biochim Biophys Acta Gen Subj 2014;1840(6):1958-64.

11. Xu XJ, Su JG, Bizzarri AR, Cannistraro S, Liu M, Zeng Y, Chen WZ, Wang CX. Detection of persistent organic pollutants binding modes with androgen receptor ligand binding domain by docking and molecular dynamics. BMC Struct Biol 2013;13(1).

12. Yamada T, Christov K, Shilkaitis A, Bratescu L, Green A, Santini S, Bizzarri AR, Cannistraro S, Gupta TKD, Beattie CW. P28, A first in class peptide inhibitor of cop1 binding to p53. Br J Cancer 2013;108(12):2495-504.

13. Tosolini G, Scarponi F, Cannistraro S, Bausells J. Biomolecule recognition using piezoresistive nanomechanical force probes. Appl Phys Lett 2013;102(25).

14. Raccosta S, Baldacchini C, Rita Bizzarri A, Cannistraro S. Conductive atomic force microscopy study of single molecule electron transport through the azurin-gold nanoparticle system. Appl Phys Lett 2013;102(20).

15. Xu X-, Cannistraro S, Bizzarri A-, Zeng Y, Chen W-, Wang C-. Inhibition of CK2 activity by TCDD via binding to ATP-competitive binding site of catalytic subunit: Insight from computational studies. Chem Res Chin Univ 2013;29(2):299-306.

16. Bizzarri AR, Cannistraro S. 1/fα noise in the dynamic force spectroscopy curves signals the occurrence of biorecognition. Phys Rev Lett 2013;110(4).

17. Bizzarri AR, Brida D, Santini S, Cerullo G, Cannistraro S. Ultrafast pump-probe study of the excited-state charge-transfer dynamics in blue copper rusticyanin. J Phys Chem B 2012;116(14):4192-8.

18. Domenici F, Bizzarri AR, Cannistraro S. Surface-enhanced raman scattering detection of wild-type and mutant p53 proteins at very low concentration in human serum. Anal Biochem 2012;421(1):9-15.

19. Tortolini C, Rea S, Carota E, Cannistraro S, Mazzei F. Influence of the immobilization procedures on the electroanalytical performances of trametes versicolor laccase based bioelectrode. Microchem J 2012;100(1):8-13.

20. Domenici F, Bizzarri AR, Cannistraro S. SERS-based nanobiosensing for ultrasensitive detection of the p53 tumor suppressor. Int J Nanomedicine 2011;6:2033-42.

21. Bizzarri AR, Santini S, Coppari E, Bucciantini M, Di Agostino S, Yamada T, Beattie CW, Cannistraro S. Interaction of an anticancer peptide fragment of azurin with p53 and its isolated domains studied by atomic force spectroscopy. Int J Nanomed 2011;6(1):3011-9.

22. Santini S, Bizzarri AR, Cannistraro S. Modelling the interaction between the p53 DNA-binding domain and the p28 peptide fragment of azurin. J Mol Recogn 2011;24(6):1043-55.

23. Domenici F, Frasconi M, Mazzei F, D'Orazi G, Bizzarri AR, Cannistraro S. Azurin modulates the association of Mdm2 with p53: SPR evidence from interaction of the full-length proteins. J Mol Recognit 2011;24(4):707-14.

24. Pepi F, Tata A, Garzoli S, Giacomello P, Ragno R, Patsilinakos A, Fusco MD, D'Annibale A, Cannistraro S, Baldacchini C, Favero G, Frasconi M, Mazzei F. Chemically modified multiwalled carbon nanotubes electrodes with ferrocene derivatives through reactive landing. J Phys Chem C 2011;115(11):4863-71.

25. Bizzarri AR, Cannistraro S. Free energy evaluation of the p53-Mdm2 complex from unbinding work measured by dynamic force spectroscopy. Phys Chem Chem Phys 2011;13(7):2738-43.

26. Baldacchini C, Herrero Chamorro MA, Prato M, Cannistraro S. Highly conductive redox protein-carbon nanotube complex for biosensing applications. Adv Funct Mater 2011;21(1):153-7.

27. Funari G, Domenici F, Nardinocchi L, Puca R, D'Orazi G, Bizzarri AR, Cannistraro S. Interaction of p53 with Mdm2 and azurin as studied by atomic force spectroscopy. J Mol Recogn 2010;23(4):343-51.

28. Delfino I, Cerullo G, Cannistraro S, Manzoni C, Polli D, Dapper C, Newton WE, Guo Y, Cramer SP. Observation of terahertz vibrations in the nitrogenase femo cofactor by femtosecond pump-probe spectroscopy. Angew Chem Int Ed 2010;49(23):3912-5.

29. Baldacchini C, Cannistraro S. Lying-down metallic single-walled carbon nanotubes as efficient linkers for metalloprotein-based nanodevices. J Nanosci Nanotechnol 2010;10(4):2753-8.

30. Bizzarri AR, Cannistraro S. The application of atomic force spectroscopy to the study of biological complexes undergoing a biorecognition process. Chem Soc Rev 2010;39(2):734-49.

31. Bizzarri AR, Cannistraro S. Atomic force spectroscopy in biological complex formation: Strategies and prerspectives. J Phys Chem B 2009;113(52):16449-64.

32. Bizzarri AR, Agostino SD, Andolfi L, Cannistraro S. A combined atomic force microscopy imaging and docking study to investigate the complex between p53 DNA binding domain and azurin. J Mol Recogn 2009;22(6):506-15.

33. Bizzarri AR, Cannistraro S. Surface-enhanced raman spectroscopy combined with atomic force microscopy for ultrasensitive detection of thrombin. Anal Biochem 2009;393(2):149-54.

34. Taranta M, Bizzarri AR, Cannistraro S. Modeling the interaction between the N-terminal domain of the tumor suppressor p53 and azurin. J Mol Recogn 2009;22(3):215-22.

35. Delfino I, Cannistraro S. Optical investigation of the electron transfer protein azurin-gold nanoparticle system. Biophys Chem 2009;139(1):1-7.

36. Guzzi R, Sportelli L, Sato K, Cannistraro S, Dennison C. Thermal unfolding studies of a phytocyanin. Biochim Biophys Acta Proteins Proteomics 2008;1784(12):1997-2003.

37. Ferrero VEV, Andolfi L, Di Nardo G, Sadeghi SJ, Fantuzzi A, Cannistraro S, Gilardi G. Protein and electrode engineering for the covalent immobilization of P450 BMP on gold. Anal Chem 2008;80(22):8438-46.

38. Bizzarri AR, Andolfi L, Taranta M, Cannistraro S. Optical and electronic coupling of the redox copper azurin on ITO-coated quartz substrate. Biosens Bioelectron 2008;24(2):204-9.

39. Taranta M, Bizzarri AR, Cannistraro S. Probing the interaction between p53 and the bacterial protein azurin by single molecule force spectroscopy. J Mol Recogn 2008;21(1):63-70.

40. Bizzarri, MS,PhD, A.R., Cannistraro, MS,PhD, S. SERS detection of thrombin by protein recognition using functionalized gold nanoparticles. Nanomed Nanotechnol Biol Med 2007;3(4):306-10.

41. Bizzarri AR, Cannistraro S. Statistical analysis of intensity fluctuations in single molecule SERS spectra. Phys Chem Chem Phys 2007;9(39):5315-9.

42. Baldacchini C, Cannistraro S. Conductive atomic force microscopy investigation of transverse current across metallic and semiconducting single-walled carbon nanotubes. Appl Phys Lett 2007;91(12).

43. De Grandis V, Bizzarri AR, Cannistraro S. Docking study and free energy simulation of the complex between p53 DNA-binding domain and azurin. J Mol Recogn 2007;20(4):215-26.

44. Delfino I, Bonanni B, Andolfi L, Baldacchini C, Bizzarri AR, Cannistraro S. Yeast cytochrome c integrated with electronic elements: A nanoscopic and spectroscopic study down to single-molecule level. J Phys Condens Matter 2007;19(22).

45. Andolfi L, Caroppi P, Bizzarri AR, Piro MC, Sinibaldi F, Ferri T, Polticelli F, Cannistraro S, Santucci R. Nanoscopic and redox characterization of engineered horse cytochrome c chemisorbed on a bare gold electrode. Protein J 2007;26(4):271-9.

46. Bonanni B, Andolfi L, Bizzarri AR, Cannistraro S. Functional metalloproteins integrated with conductive substrates: Detecting single molecules and sensing individual recognition events. J Phys Chem B 2007;111(19):5062-75.

47. Tan M-, Bizzarri AR, Xiao Y, Cannistraro S, Ichiye T, Manzoni C, Cerullo G, Adams MWW, Jenney Jr. FE, Cramer SP. Observation of terahertz vibrations in pyrococcus furiosus rubredoxin via impulsive coherent vibrational spectroscopy and nuclear resonance vibrational spectroscopy - interpretation by molecular mechanics. J Inorg Biochem 2007;101(3):375-84.

48. Bizzarri AR, Brunori E, Bonanni B, Cannistraro S. Docking and molecular dynamics simulation of the azurin-cytochrome c551 electron transfer complex. J Mol Recogn 2007;20(2):122-31.

49. Andolfi L, Bizzarri AR, Cannistraro S. Electron tunneling in a metal-protein-metal junction investigated by scanning tunneling and conductive atomic force spectroscopies. Appl Phys Lett 2006;89(18).

50. Andolfi L, Bizzarri AR, Cannistraro S. Assembling of redox proteins on au(111) surfaces: A scanning probe microscopy investigation for application in bio-nanodevices. Thin Solid Films 2006;515(1):212-9.

51. Delfino I, Manzoni C, Sato K, Dennison C, Cerullo G, Cannistraro S. Ultrafast pump-probe study of excited-state charge-transfer dynamics in umecyanin from horseradish root. J Phys Chem B 2006;110(34):17252-9.

52. Cannone F, Chirico G, Bizzarri AR, Cannistraro S. Quenching and blinking of fluorescence of a single dye molecule bound to gold nanoparticles. J Phys Chem B 2006;110(33):16491-8.

53. Bonanni B, Bizzarri AR, Cannistraro S. Optimized biorecognition of cytochrome c 551 and azurin immobilized on thiol-terminated monolayers assembled on au(111) substrates. J Phys Chem B 2006;110(30):14574-80.

54. Delfino I, Bizzarri AR, Cannistraro S. Time-dependent study of single-molecule SERS signal from yeast cytochrome c. Chem Phys 2006;326(2-3):356-62.

55. Bizzarri AR, Cannistraro S. Temporal fluctuations in single-molecule SERS spectra. Top Appl Phys 2006;103:279-96.

56. Andolfi L, Cannistraro S. Conductive atomic force microscopy study of plastocyanin molecules adsorbed on gold electrode. Surf Sci 2005;598(1-3):68-77.

57. Delfino I, Sato K, Harrison MD, Andolfi L, Bizzarri AR, Dennison C, Cannistraro S. Optical spectroscopic investigation of the alkaline transition in umecyanin from horseradish root. Biochemistry 2005;44(49):16090-7.

58. Bonanni B, Kamruzzahan ASM, Bizzarri AR, Rankl C, Gruber HJ, Hinterdorfer P, Cannistraro S. Single molecule recognition between cytochrome C 551 and gold-immobilized azurin by force spectroscopy. Biophys J 2005;89(4):2783-91.

59. Bizzarri AR, Cannistraro S. SERS and tunneling spectroscopy investigation of iron-protoporphyrin IX adsorbed on a silver tip. J Phys Chem B 2005;109(35):16571-4.

60. Bizzarri AR, Cannistraro S. Lévy statistics of vibrational mode fluctuations of single molecules from surface-enhanced raman scattering. Phys Rev Lett 2005;94(6).

61. Delfino I, Bizzarri AR, Cannistraro S. Single-molecule detection of yeast cytochrome c by surface-enhanced raman spectroscopy. Biophys Chem 2005;113(1):41-51.

62. AnonymousYeast cytochrome c on gold electrode: A robust hybrid system for bio-nanodevices. 2004 4th IEEE conference on nanotechnology; 2004. 574 p.

63. Guzzi R, Andolfi L, Cannistraro S, Verbeet MP, Canters GW, Sportelli L. Thermal stability of wild type and disulfide bridge containing mutant of poplar plastocyanin. Biophys Chem 2004;112(1):35-43.

64. Alliata D, Andolfi L, Cannistraro S. Tip to substrate distances in STM imaging of biomolecules. Ultramicroscopy 2004;101(2-4):231-40.

65. Bizzarri AR, Cannistraro S. Evidence of electron-transfer in the SERS spectra of a single iron-protoporphyrin IX molecule. Chem Phys Lett 2004;395(4-6):222-6.

66. Andolfi L, Bruce D, Cannistraro S, Canters GW, Davis JJ, Hill HAO, Crozier J, Verbeet MP, Wrathmell CL, Astier Y. The electrochemical characteristics of blue copper protein monolayers on gold. J Electroanal Chem 2004;565(1):21-8.

67. Andolfi L, Canters GW, Verbeet MP, Cannistraro S. Scanning tunneling spectroscopy investigation of self-assembled plastocyanin mutants onto gold substrates under controlled environment. Biophys Chem 2004;107(2):107-16.

68. Cimei T, Bizzarri AR, Cerullo G, De Silvestri S, Cannistraro S. Excited state charge-transfer dynamics study of poplar plastocyanin by ultrafast pump-probe spectroscopy and molecular dynamics simulation. Biophys Chem 2003;106(3):221-31.

69. Bizzarri AR, Bonanni B, Costantini G, Cannistraro S. A combined atomic force microscopy and molecular dynamics simulation study on a plastocyanin mutant chemisorbed on a gold surface. ChemPhysChem 2003;4(11):1189-95.

70. Bonanni B, Alliata D, Bizzarri AR, Cannistraro S. Topological and electron-transfer properties of yeast cytochrome c adsorbed on bare gold electrodes. ChemPhysChem 2003;4(11):1183-8.

71. Bizzarri AR, Costantini G, Cannistraro S. MD simulation of a plastocyanin mutant adsorbed onto a gold surface. Biophys Chem 2003;106(2):111-23.

72. Cerullo G, Zavelani-Rossi M, De Silvestri S, Pellegrini V, Beltram F, Cannistraro S. Coherent vibrational dynamics of green fluorescent proteins and blue coppers proteins. Springer Ser Chem Phys 2003;71:622-4.

73. Bizzarri AR, Cannistraro S. Temporal fluctuations in the SERRS spectra of single iron-protoporphyrin IX molecule. Chem Phys 2003;290(2-3):297-306.

74. Andolfi L, Bonanni B, Canters GW, Verbeet MP, Cannistraro S. Scanning probe microscopy characterization of gold-chemisorbed poplar plastocyanin mutants. Surf Sci 2003;530(3):181-94.

75. Tozzini V, Bizzarri AR, Pellegrini V, Nifosì R, Giannozzi P, Iuliano A, Cannistraro S, Beltram F. The low frequency vibrational modes of green fluorescent proteins. Chem Phys 2003;287(1-2):33-42.

76. Bizzarri AR, Cannistraro S. Surface-enhanced resonance raman spectroscopy signals from single myoglobin molecules. Appl Spectrosc 2002;56(12):1531-7.

77. Cimei T, Bizzarri AR, Cannistraro S, Cerullo G, De Silvestri S. Vibrational coherence in azurin with impulsive excitation of the LMCT absorption band. Chem Phys Lett 2002;362(5-6):497-503.

78. Orecchini A, Paciaroni A, Bizzarri AR, Cannistraro S. Dynamics of different hydrogen classes in β-lactoglobulin: A quasielastic neutron scattering investigation. J Phys Chem B 2002;106(29):7348-54.

79. Bizzarri AR, Cannistraro S. Molecular dynamics of water at the protein-solvent interface. J Phys Chem B 2002;106(26):6617-33.

80. Carlini P, Bizzarri AR, Cannistraro S. Temporal fluctuations in the potential energy of proteins: 1/fα noise and diffusion. Phys D Nonlinear Phenom 2002;165(3-4):242-50.

81. Venturini F, Gallo P, Ricci MA, Bizzarri AR, Cannistraro S. Study of the β relaxation in supercooled confined water. Philos Mag B 2002;82(5):507-15.

82. Andolfi L, Cannistraro S, Canters GW, Facci P, Ficca AG, Van Amsterdam IMC, Verbeet MP. A poplar plastocyanin mutant suitable for adsorption onto gold surface via disulfide bridge. Arch Biochem Biophys 2002;399(1):81-8.

83. Bizzarri AR, Cannistraro S. Intensity fluctuations of the copper site resonant vibrational modes as observed by MD simulation in single plastocyanin molecule. Chem Phys Lett 2001;349(5-6):503-10.

84. Orecchini A, Paciaroni A, Bizzarri AR, Cannistraro S. Low-frequency vibrational anomalies in β-lactoglobulin: Contribution of different hydrogen classes revealed by inelastic neutron scattering. J Phys Chem B 2001;105(48):12150-6.

85. Facci P, Alliata D, Cannistraro S. Potential-induced resonant tunneling through a redox metalloprotein investigated by electrochemical scanning probe microscopy. Ultramicroscopy 2001;89(4):291-8.

86. Milani M, Andolfi L, Cannistraro S, Verbeet MP, Bolognesi M. The 1.6 Å resolution crystal structure of a mutant plastocyanin bearing a 21-25 engineered disulfide bridge. Acta Crystallogr Sect D Biol Crystallogr 2001;57(11):1735-8.

87. Bizzarri AR, Paciaroni A, Arcangeli C, Cannistraro S. Low-frequency vibrational modes in proteins: A neutron scattering investigation. Eur Biophys J 2001;30(6):443-9.

88. Arcangeli C, Bizzarri AR, Cannistraro S. Molecular dynamics simulation and essential dynamics study of mutated plastocyanin: Structural, dynamical and functional effects of a disulfide bridge insertion at the protein surface. Biophys Chem 2001;92(3):183-99.

89. Venturini F, Gallo P, Ricci MA, Bizzarri AR, Cannistraro S. Low frequency scattering excess in supercooled confined water. J Chem Phys 2001;114(22):10010-4.

90. Arcangeli C, Bizzarri AR, Cannistraro S. Concerted motions in copper plastocyanin and azurin: An essential dynamics study. Biophys Chem 2001;90(1):45-56.

91. Paciaroni A, Sacchetti F, Cannistraro S. A monte carlo analysis of the elastic incoherent neutron scattering data in hydrated azurin. Chem Phys 2000;261(1-2):39-45.

92. Bizzarri AR, Paciaroni A, Cannistraro S. Glasslike dynamical behavior of the plastocyanin hydration water. Phys Rev E 2000;62(3 B):3991-9.

93. Arcangeli C, Yu W, Cannistraro S, Gratton E. Two-photon autofluorescence microscopy and spectroscopy of antarctic fungus: New approach for studying effects of UV-B irradiation. Biopolym Biospectrosc Sect 2000;57(4):218-25.

94. Arcangeli C, Cannistraro S. In situ raman microspectroscopic identification and localization of carotenoids: Approach to monitoring of UV-B irradiation stress on antarctic fungus. Biopolym Biospectrosc Sect 2000;57(3):179-86.

95. Paciaroni A, Bizzarri AR, Cannistraro S. Low frequency vibrational anomalies in hydrated copper azurin: A neutron scattering and MD simulation study. J Mol Liq 2000;84(1):3-16.

96. Paciaroni A, Bizzarri AR, Cannistraro S. Neutron scattering evidence of a boson peak in protein hydration water. Phys Rev E 1999;60(3):R2476-9.

97. Paciaroni A, Stroppolo ME, Arcangeli C, Bizzarri AR, Desideri A, Cannistraro S. Incoherent neutron scattering of copper azurin: A comparison with molecular dynamics simulation results. Eur Biophys J 1999;28(6):447-56.

98. Paciaroni A, Rita Bizzarri A, Cannistraro S. Low frequency anomaly in the hydration water of copper azurin. Phys B Condens Matter 1999;269(3-4):409-15.

99. Placidi M, Cannistraro S. Dynamic light scattering evidence of a 'fragile' character of protein aqueous solutions. Chem Phys Lett 1999;310(1-2):130-6.

100. Bizzarri AR, Cannistraro S. Molecular dynamics simulation of plastocyanin potential energy fluctuations: 1/f noise. Phys A 1999;267(3):257-70.

101. Arcangeli C, Bizzarri AR, Cannistraro S. Long-term molecular dynamics simulation of copper azurin: Structure, dynamics and functionality. Biophys Chem 1999;78(3):247-57.

102. Chirico G, Placidi M, Cannistraro S. Fractional stokes-einstein relationship in biological colloids: Role of mixed stick-slip boundary conditions. J Phys Chem B 1999;103(10):1746-51.

103. Placidi M, Cannistraro S. A dynamic light scattering study on mutual diffusion coefficient of BSA in concentrated aqueous solutions. Europhys Lett 1998;43(4):476-81.

104. Arcangeli C, Bizzarri AR, Cannistraro S. Role of interfacial water in the molecular dynamics-simulated dynamical transition of plastocyanin. Chem Phys Lett 1998;291(1-2):7-14.

105. Paciaroni A, Bizzarri AR, Cannistraro S. Molecular-dynamics simulation evidences of a boson peak in protein hydration water. Phys Rev E 1998;57(6):R6277-80.

106. Rocchi C, Bizzarri AR, Cannistraro S. Water dynamical anomalies evidenced by molecular-dynamics simulations at the solvent-protein interface. Phys Rev E 1998;57(3 SUPPL. B):3315-25.

107. Bizzarri AR, Cannistraro S. Flickering noise in the potential energy fluctuations of proteins as investigated by MD simulation. Phys Lett Sect A Gen at Solid State Phys 1997;236(5-6):596-601.

108. Ciocchetti A, Bizzarri AR, Cannistraro S. Long-term molecular dynamics simulation of copper plastocyanin in water. Biophys Chem 1997;69(2-3):185-98.

109. Polizio F, Bizzarri AR, Cannistraro S, Desideri A. Solvent effects on the distribution of conformational substates in native and azide reacted cu, zn superoxide dismutase. an EPR study. Eur Biophys J 1997;26(4):291-7.

110. Arcangeli C, Zucconi L, Onofri S, Cannistraro S. Fluorescence study on whole antarctic fungal spores under enhanced UV irradiation. J PHOTOCHEM PHOTOBIOL B BIOL 1997;39(3):258-64.

111. Guzzi R, Bizzarri AR, Sportelli L, Cannistraro S. An EPR investigation on the structural heterogeneity in copper azurin and plastocyanin. Biophys Chem 1997;63(2-3):211-9.

112. Bizzarri AR, Cannistraro S. Anomalous and anisotropic diffusion of plastocyanin hydration water. Europhys Lett 1997;37(3):201-6.

113. Rocchi C, Bizzarri AR, Cannistraro S. Water residence times around copper plastocyanin: A molecular dynamics simulation approach. Chem Phys 1997;214(2-3):261-76.

114. Lamanna R, Cannistraro S. Effect of ethanol addition upon the structure and the cooperativity of the water H bond network. Chem Phys 1996;213(1-3):95-110.

115. Bizzarri AR, Rocchi C, Cannistraro S. Origin of the anomalous diffusion observed by MD simulation at the protein-water interface. Chem Phys Lett 1996;263(3-4):559-66.

116. Bizzarri AR, Cannistraro S. Molecular dynamics simulation evidence of anomalous diffusion of protein hydration water. Phys Rev E 1996;53(4 SUPPL. A):R3040-3.

117. Arcangeli C, Zucconi L, Onofri S, Cannistraro S. Effects of UV irradiation on the fluorescence spectroscopic properties of the antarctic fungus arthrobotrys ferox. PHYS MED 1996;12(3):119-23.

118. Traina G, Cannistraro S, Bagnoli P. Effects of somatostatin on intracellular calcium concentration in PC12 cells. J Neurochem 1996;66(2):485-92.

119. Bizzarri AR, Wang CX, Chen WZ, Cannistraro S. Hydrogen bond analysis by MD simulation of copper plastocyanin at different hydration levels. Chem Phys 1995;201(2-3):463-72.

120. Lamanna R, Floridi G, Cannistraro S. Cooperativity and hydrogen bond network lifetime in liquid water. Physical Review E 1995;52(4):4529-32.

121. Floridi G, Lamanna R, Cannistraro S. Rotational dynamics of di-tert-butyl-nitroxide in normal and supercooled water: An electron paramagnetic resonance study. Appl Magn Reson 1994;7(4):537-50.

122. Fini C, Thuong VD, Aliante M, Floridi A, Cannistraro S. Reconstitution of 5'-nucleotidase of bull seminal plasma in spin-labeled liposomes. J Membarin Biol 1994;142(1):137-44.

123. Bizzarri AR, Cannistraro S. Temperature dependence of the g=6 EPR linewidth in high spin FeIII myoglobin samples. Appl Magn Reson 1994;6(4):575-86.

124. Xin Wang C, Bizzarri AR, Wu Xu Y, Cannistraro S. Molecular dynamics of copper plastocyanin: Simulations of structure and dynamics as a function of hydration. Chem Phys 1994;183(1):155-66.

125. Lamanna R, Delmelle M, Cannistraro S. Role of hydrogen-bond cooperativity and free-volume fluctuations in the non-arrhenius behavior of water self-diffusion: A continuity-of-states model. Physical Review E 1994;49(4):2841-50.

126. Lamanna R, Delmelle M, Cannistraro S. Solvent stokes-einstein violation in aqueous protein solutions. Physical Review E 1994;49(6):5878-80.

127. Bizzarri AR, Cannistraro S. Solvent modulation of the structural heterogeneity in FeIII myoglobin samples: A low temperature EPR investigation. Eur Biophys J 1993;22(4):259-67.

128. Floridi G, Brandis D, Kanert O, Dinse KP, Cannistraro S. Continuous-wave and pulsed-EPR study of the Cu2+65-doped NaOD-water system in the amorphous and polycrystalline phases. Physical Review B 1993;48(18):13474-80.

129. Bizzarri AR, Cannistraro S. Conformational substates and distribution of crystal field parameters in heme-proteins. PHYS MED 1993;9(SUPPL. 1):29-32.

130. Bizzarri AR, Bacci M, Cannistraro S. Distribution of the iron-heme displacement as resulting from myoglobin conformational substates: An AOM approach to the interpretation of the EPR spe. Biophys Chem 1993;46(2):117-29.

131. Marzola P, Cannistraro S. Hydration and protein dynamics: An ESR and ST-ESR spin labelling study of human serum albumin. Appl Magn Reson 1992;3(6):1045-60.

132. Bizzarri AR, Cannistraro S. Conformational substate distribution in low spin ferric myoglobin as studied by electron paramagnetic resonance. Appl Magn Reson 1992;3(6):1033-43.

133. Lamanna R, Cannistraro S. Hydrogen-bond cooperativity and free-volume effects on normal and supercooled water self-diffusion. Physical Review A 1992;46(12):R7367-70.

134. Bizzarri AR, Cannistraro S. Solvent effects on myoglobin conformational substates as studied by electron paramagnetic resonance. Biophys Chem 1992;42(1):79-85.

135. Bizzarri AR, Cannistraro S. An electron paramagnetic resonance study of conformational substate distribution in high spin heme-proteins. Appl Magn Reson 1991;2(4):627-45.

136. Floridi G, Lamanna R, Cannistraro S. Fast-recovery crossed-coil probe for low frequency solid-state NMR. Meas Sci Technol 1991;2(10):934-7.

137. Floridi G, Lamanna R, Cannistraro S. Simple, low frequency, fast recovery crossed coil probe for pulsed NMR. Appl Magn Reson 1991;2(1):1-7.

138. Lamanna R, Cannistraro S. 1H NMR study of water relaxation and self-diffusion in human serum albumin aqueous solutions. Il Nuovo Cimento D 1991;13(3):261-71.

139. Bacci M, Cannistraro S. Role of vibronic coupling and of conformational substate distribution in determining the features of copper-protein EPR spectra. Appl Magn Reson 1990;1(3):369-78.

140. Bacci M, Cannistraro S. Role of vibronic coupling for the temperature dependence of the g-tensor in proteins containing trigonal copper(II) ions. Chem Phys 1990;148(2-3):451-5.

141. Lamanna R, Delmelle M, Cannistraro S. A near-infrared study of hydrogen bonding in human albumin aqueous solutions. Chem Phys Lett 1990;172(3-4):312-6.

142. Giugliarelli G, Cannistraro S. Nuclear magnetic relaxation and dynamics of biopolymers. Appl Magn Reson 1990;1(1):85-91.

143. Cannistraro S. EPR determination of electron-transfer rate within ceruloplasmin, a copper-protein with a likely superconductive behaviour. Chem Phys Lett 1990;168(3-4):293-6.

144. Drews AR, Thayer BD, Stapleton HJ, Wagner GC, Giugliarelli G, Cannistraro S. Electron spin relaxation measurements on the blue-copper protein plastocyanin. deviations from a power law temperature dependence. Biophys J 1990;57(1):157-62.

145. Severcan F, Cannistraro S. A spin label ESR and saturation transfer ESR study of α-tocopherol containing model membranes. Chem Phys Lipids 1990;53(1):17-26.

146. Cannistraro S. Distribution of conformational states as common source of g- and A-strain in the ESR spectra of proteins and glasses. J Phys (Paris) 1990;51(1):131-9.

147. Lamanna R, Cannistraro S. Water proton self-diffusion and hydrogen bonding in aqueous human albumin solutions. Chem Phys Lett 1989;164(6):653-6.

148. Giugliarelli G, Tancini P, Cannistraro S. IEEE-488 bus compatible computer interface for an EPR spectrometer. J Phys E 1989;22(9):702-8.

149. Severcan F, Cannistraro S. Model membrane partition ESR study in the presence of α-tocopherol by a new spin probe. Biosci Rep 1989;9(4):489-95.

150. Severcan F, Cannistraro S. Use of PDDTBN spin probe in partition studies of lipid membranes. Chem Phys Lett 1988;153(2-3):263-7.

151. Giaquinta G, Falci G, Fazio R, Onori S, Cannistraro S. High temperature superconductivity in ceruloplasmin. Phys C Supercond Appl 1988;153-155(PART 1):506-7.

152. Fini C, Floridi A, Cannistraro S. ESR study of 5'-nueleotidase from bull seminal plasma. Biophys Chem 1988;29(3):225-30.

153. Severcan F, Cannistraro S. Direct electron spin resonance evidence for α-tocopherol-induced phase separation in model membranes. Chem Phys Lipids 1988;47(2):129-33.

154. Cannistraro S, Giugliarelli G, Marzola P, Sacchetti F. Amorphous-polycrystalline transition in frozen aqueous solutions of 65Cu2+-doped sodium hydroxide probed by ESR spectroscopy. Solid State Commun 1988;68(4):369-73.

155. Bacci M, Cannistraro S. A vibronic coupling approach for the interpretation of the g-value temperature dependence in type-I copper proteins. Journal of the Chemical Society, Faraday Transactions 1: Physical Chemistry in Condensed Phases 1987;83(12):3693-700.

156. Marzola P, Cannistraro S. Gd3+-TPPS: A potential paramagnetic contrast agent in NMR imaging. Physiol Chem Phys Med NMR 1987;19(4):279-82.

157. Giugliarelli G, Tancini P, Cannistraro S. Inexpensive and versatile computer interface for an EPR spectrometer. Rev Sci Instrum 1987;58(6):1133-4.

158. Cannistraro S, Petrillo C, Sacchetti F, Calogero R, Gualerzi CO. Neutron diffraction evidence for substrate-triggered intermolecular interactions in the ribosomal protein IF-2. Chem Phys Lett 1987;139(1):116-8.

159. Bacci M, Cannistraro S. Temperature dependence of the g values in blue copper protein epr spectra. Chem Phys Lett 1987;133(2):109-12.

160. Marzola P, Cannistraro S. Influence of paramagnetic ions bound to human serum albumin on water 1HNMR relaxation times. Physiol Chem Phys Med NMR 1986;18(4):263-73.

161. Wang CX, Giugliarelli G, Cannistraro S, Fini C. Spectroscopic and computer simulation study on paramagnetic copper-containing plastocyanin. Il Nuovo Cimento D 1986;8(1):76-90.

162. Mollinedo F, Cannistraro S. Electron paramagnetic resonance evidence of metal-ion binding sites in micrococcus lysodeikticus (M. luteus) F1-ATPase. Biochim Biophys Acta Bioenerg 1986;848(2):224-9.

163. Cannistraro S, Sacchetti F. Rotational and translational dynamics of human albumin. Physical Review A 1986;33(1):745-6.

164. Bruno S, Cannistraro S, Gliozzi A, De Rosa M, Gambacorta A. A spin label ESR and saturation transfer-ESR study of archaebacteria bipolar lipids. Eur Biophys J 1985;13(2):67-76.

165. Cannistraro S. Modulation by alcohol molecules of ferrihemoglobin electronic spin state and crystal field symmetry. Chem Phys Lett 1985;122(1-2):165-8.

166. Giugliarelli G, Cannistraro S. Simulation of EPR spectra of Cu2+ complexes with statistical distribution of the g-factor and hyperfine splitting. Chem Phys 1985;98(1):115-22.

167. Wang C-, Cannistraro S. Computer simulation of water-plastocyanin interaction energy. Il Nuovo Cimento D 1985;5(5):405-14.

168. Cannistraro S, Giugliarelli G, Onori G, Rongoni E. Electron paramagnetic resonance and optical spectroscopic study of the Cu2+-tRNA system. Biophys Chem 1985;22(1-2):107-13.

169. Cannistraro S. Simple system for high-pressure EPR measurements on aqueous samples. Rev Sci Instrum 1984;55(6):996-7.

170. Giugliarelli G, Cannistraro S. Monte carlo simulation of the electron paramagnetic resonance spectrum displayed by copper ceruloplasmin at 77 K. Il Nuovo Cimento D 1984;4(2):194-205.

171. Cannistraro S, Indovina PL. Molecular dynamics and interactions of human ceruloplasmin: A spin labelling study. Il Nuovo Cimento D 1984;4(2):206-18.

172. Guerciolini R, Del Favero A, Cannistraro S. AMIODARONE-INDUCED PHOTOSENSITIVITY AND PYRIDOXINE. Lancet 1984;323(8383):962.

173. Cannistraro S, Sacchetti F. Small angle neutron scattering and spin labeling of human ceruloplasmin. Phys Lett Sect A Gen at Solid State Phys 1984;101(3):175-7.

174. Emiliani C, Cannistraro S. Spin exchange in nitroxide-charged membrane models: An ESR method for detecting photodynamic effects. Il Nuovo Cimento D 1983;2(4):1203-12.

175. Emiliani C, Delmelle M, Cannistraro S, Van de Vorst A. Solubility of hematoporphyrin and photodynamic damages in liposomal systems: Optical and electron spin resonance studies. Photobiochem Photobiophys 1983;5(2):119-28.

176. Pon C, Cannistraro S, Giovane A, Gualerzi C. Structure-function relationship in escherichia coli initiation factors. environment of the cys residue and evidence for a hydrophobic region in initiation factor IF3 by fluorescence and ESR spectroscopy. Arch Biochem Biophys 1982;217(1):47-57.

177. Sportelli L, Martino G, Cannistraro S. 465-photobiological conversion of solar energy. part I. bacteriorhodopsin proton pump activity in reconstituted liposomes. Bioelectrochem Bioenerg 1982;9(2):197-206.

178. Cannistraro S, Ianzini F, Indovina PL. Electron spin resonance study on the molecular interaction between human ceruloplasmin, iron and transferrin. STUD BIOPHYS 1981;86(3):163-75.

179. Onori S, Rosati A, Cannistraro S. Electron paramagnetic resonance study of storage effects on ceruloplasmin in human serum compared with purified ceruloplasmin in aqueous solution. Physiol Chem Phys 1981;13(5):439-46.

180. Cannistraro S, Martino G, Sportelli L. Effects of pulsed electric fields on rat liver homogenate paramagnetic species. Radiat Environ Biophys 1980;18(2):123-8.

181. Cannistraro S, Indovina PL, Sportelli L. Paramagnetic species in beta-thalassemic sera: An ESR study. Z Naturforsch [C] 1980;35(3-4):193-6.

182. Cannistraro S, Indovina PL. Electron spin resonance of serum metallo-proteins in myocardial infarction. Phys Med Biol 1979;24(1):197-8.

183. Cannistraro S, Indovina PL. Electron spin resonance of serum metallo-proteins in myocardial infarction. Phys Med Biol 1979;24(1):198-9.

184. Piette J, Calberg-Bacq CM, Cannistraro S, Van De Vorst A. Photodynamic activity of dyes with different DNA binding properties: I. free-radical induction in DNA. Int J Radiat Biol 1978;34(3):213-21.

185. Cannistraro S, Van De Vorst A. Formation photosensibilisée du radical anion du psoralène. Int J Radiat Biol 1978;34(5):493-6.

186. Bomba M, Camagna A, Cannistraro S, Indovina PL, Samoggia P. EPR study of serum ceruloplasmin and iron transferrin in myocardial infarction. Physiol Chem Phys 1977;9(2):175-80.

187. Cannistraro S. Interaction of visible radiations with biologic systems in the presence of photosensitizers; applications of paramagnetic electronic resonance spectroscopy. Ann Ist Super Sanita 1977;13(4):865-74.

188. Cannistraro S, Van De Vorst A. ESR and optical absorption evidence for free radical involvement in the photosensitizing action of furocoumarin derivatives and for their singlet oxygen production. BBA Section Nucleic Acids and Protein Synthesis 1977;476(2):166-77.

189. Cannistraro S, Van de Vorst A. Photosensitization by hematoporphyrin: ESR evidence for free radical induction in unsaturated fatty acids and for singlet oxygen production. Biochem Biophys Res Commun 1977;74(3):1177-85.

190. Cannistraro S, Van de Vorst A. Radicaux d'addition d'hydrogene dans la thymidine et la thymidine 5'-monophosphate photosensibilisees par la proflavine. protection par des composes soufres. BBA Section Nucleic Acids and Protein Synthesis 1977;474(2):173-9.

191. Cannistraro S, Calberg Bacq CM, Van De Vorst A. Photosensitizing efficiency of proflavine bound to polyadenylic acid as studied by EPR. Photochem Photobiol 1976;23(2):137-9.

192. Cannistraro S, Lion Y, Van De Vorst A. Formyl radicals in X irradiated frozen aqueous solutions of DNA and nucleic acids constituents. Radiat Res 1975;64(3):581-92.

193. Cannistraro S, Lion Y, Van De Vorst A. UV induced free radicals in frozen acidic solutions of levulinic acid. Radiat Res 1975;61(1):172-6.

194. Cannistraro S, Lion Y, van de Vorst A, Calberg-Bacq CM. Photosensitization of nucleic acid constituents by proflavine: NO2 radicals due to impurities. Int J Radiat Biol 1974;26(6):589-92.

Books and book chapters

1. Bonanni B, Alliata D, Andolfi L, Bizzarri AR, Cannistraro S. Redox metalloproteins on metal surface as hybrid system for bionanodevices: an extensive characterization at the single molecule level (invited paper). Surface science research developments. Ed. C.P. Norris, Nova Science Publishers, Inc., 2005; 1-73.

2. Bizzarri AR, Cannistraro S. Electron transfer in Metalloproteins. Encyclopedia of condensed matter physics. Eds. G. Bassani, G. Liedl, P. Wyder, Elsevier Ed. 2005; 361-9.

3. Bizzarri AR, Cannistraro S. Temporal Fluctuations in Single-Molecule SERS Spectra. Surface enhanced Raman scattering –physics and applications. Springer: Topics in Applied Physics. Vol. 103 Ed.: K. Kneipp, M. Moskovits, H. Kneipp, Vol. 103 (2006) 279-296.

4. Bizzarri AR, Cannistraro S. Dynamic Force Spectroscopy and Biomolecular Recognition (CRC Press, Boca Raton, 2012).

Articoli dal 2015

Electron transfer, conduction and biorecognition properties of the redox metalloprotein Azurin assembled onto inorganic substrates
C. Baldacchini, A.R. Bizzarri, S. Cannistraro
European Polymer Journal 83 (2016) 407-427

MDM2-MDM4 molecular interaction investigated by atomic force spectroscopy and surface plasmon resonance
I.Moscetti,E. Teveroni,F.Moretti, A.R. Bizzarri, S. Cannistraro
International Journal of Nanomedicine 11 (2016) 4221-4229

Revisitation of FRET methods to measure intraprotein distances in Human Serum Albumin
S.Santini, A.R. Bizzarri, S. Cannistraro
Journal of Luminescence 179 (2016) 322- 327

Kinetics and binding geometries of the complex between ß2-microglobulin and its antibody: An AFM and SPR study
E. Coppari, S. Santini, A.R. Bizzarri, S. Cannistraro
Biophysical Chemistry 211 (2016) 19-27

Biophysics: Electron Transfer in Metalloproteins
A.R. Bizzarri, S. Cannistraro
Saleem Hashmi (editor-in-chief), Reference Module in Materials Science and Materials Engineering. Oxford: Elsevier; 2016. pp. 1-10.

Vibrational Changes Induced by Electron Transfer in Surface Bound Azurin Metalloprotein Studied by Tip-Enhanced Raman Spectroscopy and Scanning Tunneling Microscopy
S. Kradolfer,E. Lipiec,C. Baldacchini,A. R. Bizzarri,S. Cannistraro,R. Zenobi
ACS Nano, 11 (2017) 12824-12831

Surface Plasmon Resonance Sensing of Biorecognition Interactions within the Tumor Suppressor p53 Network
I. Moscetti, A. R. Bizzarri, S. Cannistraro
SENSORS, 17 (2017) 2680 1-17.

Structure, Dynamics and Electron Transfer of Azurin bound to gold electrode
A. R. Bizzarri, C. Baldacchini, S. Cannistraro
LANGMUIR, 33 (2017) 9190-9200.

Binding kinetics of mutant p53R175H with wild type p53 and p63: a Surface Plasmon Resonance and Atomic Force Spectroscopy study
I. Moscetti, A. R. Bizzarri, S. Cannistraro
BIOPHYSICAL CHEMISTRY 228 (2017) 55-61.

Structural Characterization of the Intrinsically Disordered Protein p53 Using Raman Spectroscopy
S.Signorelli, S. Cannistraro, A.R. Bizzarri
APPLIED SPECTROSCOPY 71 (2017) 823-832.

Binding of Amphipathic Cell Penetrating Peptide p28 to Wild Type and Mutated p53 as studied by Raman, Atomic Force and Surface Plasmon Resonance spectroscopies
S. Signorelli, S. Santini, T. Yamada, A. R. Bizzarri, C. W. Beattie, S. Cannistraro
BIOCHIMICA ET BIOPHYSICA ACTA, GENERAL SUBJECTS, 1861 (2017) 910-921

Surface enhanced Raman spectroscopy based immunosensor for ultrasensitive and selective detection of wild type p53 and mutant p53R175H

A. R. Bizzarri,I. Moscetti, S. Cannistraro

Analytica Chimica Acta 1029 (2018) 86-96.

Imaging and kinetics of the bimolecular complex formed by the tumor suppressor p53 with ubiquitin ligase COP1 as studied by atomic force microscopy and surface plasmon resonance

I. Moscetti, A. R. Bizzarri, S. Cannistraro

INTERNATIONAL JOURNAL OF NANOMEDICINE 13 (2018) 251-259.

Raman Evidence of p53-DBD Disorder Decrease upon Interaction with the Anticancer Protein Azurin

S. Signorelli,A. R. Bizzarri, S. Cannistraro.

INT. J. MOLECULAR SCIENCES 20 (2019)3078 1-14.

Probing Direct interaction of oncomiR-21-3p with the tumor suppressor p53 by Fluorescence, FRET and Atomic Force Spectroscopy

I. Moscetti, S. Cannistraro, A. R. Bizzarri

ARCHIVES of BIOCHEMSTRY AND BIOPHYSICS 671 (2019)35-41.

Interaction of the anticancer p28 peptide with p53-DBD as studied by fluorescence, FRET, docking and MD simulations

A. R. Bizzarri,A. G. Vegh, g. Varo S. Cannistraro

ACS OMEGA 4 (2019) 3627-3634.

Interaction of the anticancer p28 peptide with p53-DBD as studied by fluorescence, FRET, docking and MD simulations

A. R. Bizzarri, I. Moscetti, S. Cannistraro

BBA - General Subjects 1863 (2019) 342-350.