INFORMAZIONI PERSONALI

Anna Rita Bizzarri

Centro di Biofisica & Nanoscienze, Università della Tuscia,
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ESPERIENZA PROFESSIONALE

10/2006-oggi
Professore Ordinario (Fisica– SSD 02/PHYS-06)
Università della Tuscia, Dipartimento di Ecologia e Biologia (DEB), Italia

02/2008-03/2008
Visiting Professor
University of Technology, College of Life Science and Bioegineering, Beijing, China

10/2000-10/2006
Professore Associato (Fisica– FIS/07-Fisica applicata)
Università della Tuscia, Facoltà di Scienze, Italia

10/1995-09/2000
Ricercatore (Fisica – FIS/07-Fisica Applicata)
Università della Tuscia, Facoltà di Scienze, Italia

10/1993-09/1995
PostDoc
Università di Perugia, Biofisica Molecolare, Perugia, Italia

02/1993-10/1993
PostDoc
University of Mainz, Institut fuer Molekulare Biophysik, Germania

10/1991-09/1992
Fellowship
Consiglio Nazionale delle Ricerche (CNR), Biofisica Molecolare, Perugia, Italia

ISTRUZIONE E FORMAZIONE

1989-1991
PhD in Biofisica
International School for Advanced Studies (ISAS-SISSA), Trieste, Italia

1988-1989
Master in Biofisica
International School for Advanced Studies (ISAS-SISSA), Trieste, Italia

1981-1987
Laurea in Fisica
Università "La Sapienza", Roma, Italia.

COMPETENZE PERSONALI

Madrelingua: Italiano

Altre lingue

	COMPRENSIONE		PARLATO		SCRITTO
	Ascolto	Lettura	Interazione orale	Produzione orale	
Inglese	B2	B2	B2	B2	C1

Competenze digitali

AUTO VALUTAZIONE				
Elaborazioni di informazioni	Communicazione	Creazioni di contenuti	Sicurezza	Problem solving
Utente esperto	Utente esperto	Utente esperto	Utente indipendente	Utente esperto

Ottima padronanza di Linux, Fortran, Python, Office

Aree di Ricerca

- Dinamica dei sistemi biologici analizzata anche nell'ambito di sistemi disordinati.

-Proteine a trasferimento elettronico (azzurrina, plastocianina) e sviluppo di bio-nano-dispositivi nel campo della bio-nano-elettronica.

- Processi di bioriconoscimento, a livello di singola molecola ed in bulk, per lo studio di biomolecole di interesse medico, quali p53, finalizzate allo sviluppo di farmaci.

- Sviluppo di nano-biosensori per il rilevamento ultrasensibile di molecule di interesse nella diagnostica precoce (p53, microRNA)

L'attività di ricerca è condotta con diverse tecniche sperimentali quali: Spettroscopia Raman eSERS, scattering neutronico, Microscopia e Spettroscopia a Forza Atomica (AFS, AFM), Microscopia a scansione ad effetto tunnel (STM), Fluorescenza, FRET.
Le indagini sperimentali sono state integrate da approcci teorici e computazionali, quali simulazioni di dinamiche molecolari (MD) e docking

Progetti e finanziamenti

-
- Responsabile Scientifico del partner Unitus del progetto PRIN20 "Defeat antimicrobial resistance through iron starvation in Staphylococcus aureus (ERASE)"
- PI del progetto AIRC 2020 project (IG-24450) "Development of a semiconductor-based clinical platform for fast and ultrasensitive detection of oncongenic miRNAs".
- Responsabile Scientifico del partner Unitus del progetto EUROSTAR–EUREKA CoD11 , 2019-2021, "Aptamer-FET based diagnostic platform for the rapid detection of Antibiotic Resistant bacteria (AFETAR)"
- Partner del progetto AIRC 2010 and AIRC 2014
- Responsabile Scientifico del progetto Prin-Miur Project 2006 (n. 2006027587): " Spettroscopia e nanoscopia avanzate per rivelazione ultrasensibile in biomedicina "
- PI: Progetto di Innesco 2005 CNISM: (Consorzio Nazionale Interdisciplinare per le Scienze Fisiche della Materia): "Biomolecular recognition by combining force and current sensing with optical spectroscopy for early diagnostics"
- Partner del FIRB-MIUR, 2007, Italia-Cina " Nanotechnological and computational approach for environmental monitoring"
- Partner del PRIN-MIUR Projects 2004, 2009, 2013
- PAIS (Advanced Research Projects), 2000 INFM, Unity of Viterbo: "Conformational Dynamics of Single Molecules and Manipulation"
- Grants for neutron scattering measurements at Hahn Meitner-Institut (HMI) of Berlin (Germany) 2000.
- Responsabile scientifico di diverse borse ed assegni.
- Responsabile scientifico di studenti di Dottorato.

Attività professionali

- Revisore per molte riviste scientifiche, tra le quali: Journal of Physical Chemistry B, Chemical Physics, Analytical Chemistry, ACS Nano, Chem. Phys. Chem., Langmuir, Biosensors and Bioelectronics, Journal of Molecular Biorecognition, Nanoscale, Journal of American Chemical Society, Analytical Chemical Acta, Biomolecules, Analytical Methods.
- Revisore di progetti scientifici per diverse agenzie, tra le quali ANR (Agence Nationale de la Recherche, FRANCE), by ESF (European Science Foundation), by FIRB-MIUR (Futuro in Ricerca, Ministero Istruzione Università Ricerca, ITALIA), SIR-2014 ITALIA, of OPUS-14 (General grants, POLAND).
- Partecipazione a diverse Commissioni di Concorsi Universitari

Attività didattica

- A partire dal 2000, ha tenuto Corsi di Fisica per Scienze Biologiche, Laboratorio di Fisica e Statistica per Scienze Biologiche, di Fisica e Laboratorio di Fisica per Scienze Ambientali, Fisica per Biotecnologie.
- Dal 2000 al 2018, e' stata Responsabile del "Laboratorio Didattico di Fisica presso l'Università della Tuscia.
- -Dal 2014 al 2020, ha partecipato in qualità di Responsabile ad un progetto per l'insegnamento della Fisica presso l'Università della Tuscia.

Memberships

-Membro del Comitato Editoriale della rivista Physics.
-Membro della Società Italiano di Fisica (SIF).
-Membro della Americal Chemical Society (ACS).

Conferenze

-Partecipazione a più di 50 Conferenze e Congressi Nazionali ed Internazionali.

Seminari

-Più di 20 Seminari su invito

Publications

-Più di 140 pubblicazioni su riviste scientifiche (peer reviewed) (lista allegata)
-Un libro (Taylor and Francis, 2012) e vari capitoli di libri

Citations

-Piu' di 4000 citations with H-Index of 33 (Scopus, 18/11/2024)

(F.to)

Viterbo 18/11(2024

Lista delle pubblicazioni

[149] Detection of miR-155 Using Peptide Nucleic Acid at Physiological-like Conditions by Surface Plasmon Resonance and Bio-Field Effect Transistor
F. Lavecchia di Tocco, V. Botti, S. Cannistraro, A. R. Bizzarri
Biosensors (2024), 14, 79.

[148] Molecular Dynamics Simulations of the miR-155 Duplex: Impact of Ionic Strength on Structure and Na+ and Cl− Ion Distribution
A. R. Bizzarri
Molecules (2024), 29 (17), 4246.

[147] Nanoscale dynamical investigation of the hemoglobin complex with the bacterial protein IsdB: is their interaction stabilized by catch bonds?
V. Botti, O. De Bei, M. Marchetti, B. Campanini, S. Cannistraro, S. Bettati, A. R. Bizzarri
Nanoscale (2024), 16, 4308.

[146] Hybridization kinetics of miR-155 on gold surfaces investigated by Surface Plasmon Resonance and Atomic Force Spectroscopy
V. Botti, F. Lavecchia di Tocco, V. Botti, S. Cannistraro, A. R. Bizzarri
ACS Omega (2023), 8, 38941.

[145] Lutein/β-carotene ratio in extra virgin olive oil: An easy and rapid quantification method by Raman spectroscopy
S. Portarena, C. Anselmi, L. Leonardi, S. Proietti, A. R. Bizzarri, E. Brugnoli, et al.
Food Chemistry (2023), 404, 134748.

[144] Conformational Heterogeneity and Frustration of the Tumor Suppressor p53 as Tuned by Punctual Mutations
A. R. Bizzarri
International Journal of Molecular Sciences (2022), 23, 12636.

[143] Interaction between miR4749 and Human Serum Albumin as Revealed by Fluorescence, FRET, Atomic Force Spectroscopy, and Computational Modelling
V. Botti, S. Marrone, S. Cannistraro, A. R. Bizzarri
International Journal of Molecular Sciences (2022), 23, 129.

[142] Interaction of miR-155 with Human Serum Albumin: An Atomic Force Spectroscopy, Fluorescence, FRET, and Computational Modelling Evidence
V. Botti, S. Cannistraro, A. R. Bizzarri
International Journal of Molecular Sciences (2022), 23, 10728.

[141] Solution structure of the anticancer p28 peptide in biomimetic medium
F. Cantini, P. Gianni, P. Savarin, A. R. Bizzarri, M. Sette
Journal of Peptide Science 2021, 27 (11), e3357.

[140] The use of a commercial ESI Z-spray source for ambient ion soft landing and microdroplet reactivity experiments
C. Salvitti, A. Troiani, F. Mazzei, C. D'Agostino, R. Zumpano, C. Baldacchini, et al.
International Journal of Mass Spectrometry 2021, 468, 116658.

[139] Temperature modulation of the DBDp53 structure as monitored by static and time-resolved fluorescence combined with molecular dynamics simulations

A. R. Bizzarri, S. Cannistraro
The Journal of Physical Chemistry B 2021, 125 (36), 10166-10173.

[138] Direct interaction of miRNA and circRNA with the oncosuppressor p53: An intriguing perspective in cancer research
A. R. Bizzarri, S. Cannistraro
Cancers 2021, 13, 6108.

[137] A Competitive O-Acetylserine Sulfhydrylase Inhibitor Modulates the Formation of Cysteine Synthase Complex
M. Marchetti, F. S. De Angelis, G. Annunziato, G. Costantino, M. Pieroni, et al.
Catalysts (2021), 11 (6), 700.

[136] Investigation of a Direct Interaction between miR4749 and the Tumor Suppressor p53 by Fluorescence, FRET and Molecular Modeling
A.R. Bizzarri, S. Cannistraro
BIOMOLECULES 2020, 10, 346; doi:10.3390/biom10020346

[135] Nanogap Sensors Decorated with SnO2 Nanoparticles Enable Low-Temperature Detection of Volatile Organic Compounds, L. Francioso, C. De Pascali, P. Creti, A. V. Radogna, S. Capone, A.Taurino, M. Epifani, C. Baldacchini, A. R. Bizzarri, P.A. Siciliano
ACS Appl. Nano Mater. 3 (2020) 3337−3346.

[134] A reliable biofet immunosensor for detection of p53 tumour suppressor in physiological-like environment
C Baldacchini, AF Montanarella, L Francioso, MA Signore, S Cannistraro, ...
Sensors (2020) 20 (21), 6364

[133] Time-Resolved Fluorescence and Essential Dynamics Study on the 2 Structural Heterogeneity of p53DBD Bound to the Anticancer p28 3 Peptide.
AR Bizzarri, S Cannistraro
Journal of Physical Chemistry B (2020) 124 (44), 9820-9828

[132] Interaction of human haemoglobin and semi-hemoglobins with the *Staphylococcus aureus* hemophore IsdB: a kinetic and mechanistic insight
E. Gianquinto,I. Moscetti, O.De Bei,B. Campanini, M. Marchetti, F. Javier Luque, S. Cannistraro, L. Ronda, A. R. Bizzarri, F.Spyrakis , S. Bettati
SCIENTIFIC REPORTS 9 (2019) 18629 1-19.

[**131**] 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.

[**130**] 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.

[**129**] 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.

[**128**] 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.

[**127**] 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.

[**126**]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) 251-25

[125] 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 12824-12831 (2017).

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

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

[122] 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 55-61 (2017).

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

[120] 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 910-921 (2017).

[119] 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 83 407-427 (2016).

[118] 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 4221-4229 (2016).

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

[116] 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 19-27 (2016).

[115] 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; pp. 1-10, (2016).

[114] Energy landscape investigation by wavelet transform analysis of atomic force spectroscopy data in a biorecognition experiment.
A.R. Bizzarri
JOURNAL OF BIOLOGICAL PHYSICS, 2016.

[113] Calcium ions modulate the mechanics of Tomato Bushy Stunt Virus
A. Llaurò, E. Coppari, F. Imperatori, A.R. Bizzarri, J.R. Castòn, L. Santi, S. Cannistraro, P.J. de Pablo
BIOPHYSICAL JOURNAL, 109 1-8 (2015).

[112] Electron tunneling through single azurin molecules can be on/off switched by voltage pulses.
C. Baldacchini, V. Kumar, A.R. Bizzarri, S. Cannistraro
APPLIED PHYSICS LETTERS, 106 183701 (1-4) (2015).

[111] Chirality Switching within an Anionic Cell-Penetrating Peptide Inhibits Translocation without Affecting Preferential Entry.
T. Yamada, S. Signorelli, S. Cannistraro, C.W. Beattie, A.R. Bizzarri
MOLECULAR PHARMACEUTICS, 12 140-149 (2015).

[110] Antigen–antibody biorecognition events as discriminated by noise analysis of force spectroscopy curves.
A.R. Bizzarri, S. Cannistraro
NANOTECHNOLOGY, 25 335102(1)-335102(8) (2014).

[108] Interaction of mutant p53 with p73: a Surface Plasmon Resonance and Atomic Force Spectroscopy study.
S. Santini, S. Di Agostino, E. Coppari, A.R. Bizzarri, G. Blandino, S. Cannistraro
BIOCHIMICA ET BIOPHYSICA ACTA, GENERAL SUBJECTS, 1840 1958-1964 (2014).

[107] A nanotechnological, molecular modeling and immunological approach to study the interaction of the anti-tumorigenic peptide p28 with the p53 family of proteins.
E. Coppari, T. Yamada, A.R. Bizzarri, C.W. Beattie, S. Cannistraro
INTERNATIONAL JOURNAL OF NANOMEDICINE, 20 1799-1813 (2014).

[106] Excitation of the Ligand-to-Metal Charge Transfer band induces electron tunnelling in Azurin
C. Baldacchini, A.R. Bizzarri, S. Cannistraro.
APPLIED PHYSICS LETTERS, 104 093702-1-3 (2014).

[105] Steered Molecular Dynamics of an anticancer peptide interacting with the p53 DNA-Binding Domain.
X.j. Xu, J.G. Su, W.Z. Chen, C.X. Wang, S. Cannistraro, A.R. Bizzarri
PROGRESS IN BIOCHEMISTRY AND BIOPHYSICS, 41 598-609 (2014).

[104] Binding of azurin to cytochrome c 551 as investigated by surface plasmon resonance and fluorescence.
S. Santini, A.R. Bizzarri, T. Yamada, C.W. Beattie, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION, 27 124-130 (2014).

[103] Detection of persistent organic pollutants binding modes with androgen receptor ligand binding domain by docking and molecular dynamics.
X.J. Xu, J.G. Su, A.R. Bizzarri, S. Cannistraro, M. Liu, Y. Zeng, W.Z. Chen, C.X. Wang
BMC STRUCTURAL BIOLOGY, 13-16 (2013).

[102] p28, a First in Class Peptide Inhibitor of COP1 Binding to p53.
T. Yamada, K. Christov, A. Shilkaitis, L. Bratescu, A. Green, S. Santini, A. R. Bizzarri, S. Cannistraro, T. das Gupta, C. Beattie
BRITISH JOURNAL OF CANCER, 108 2495-2504 (2013).

[101] Conductive Atomic Force Microscopy study of single molecule electron transport through the Azurin-Gold Nanoparticle system
S. Raccosta, C. Baldacchini, A. R. Bizzarri, S. Cannistraro
APPLIED PHYSICS LETTERS, 102 203704-1-4 (2013).

[100] Inhibition of CK2 Activity by TCDD viabinding to ATP-competitive binding site of catalytic subunit: Insight from computational studies
X.-J. Xu, S. Cannistraro, A.R. Bizzarri, Y. Zeng, W.-Z. Chen, C.-X. Wang
CHEMICAL RESEARCH IN CHINESE UNIVERSITIES 29 299-306 (2013).

[99] $1/f^{\alpha}$ noise in the dynamic force spectroscopy curves signals the occurrence of biorecognition
A.R. Bizzarri, S. Cannistraro
PHYSICAL REVIEW LETTERS 110 048104-1-4 (2013).

[98] Ultrafast Pump-Probe Study of the Excited-State Charge-Transfer Dynamics in Blue Copper Rusticyanin
A.R. Bizzarri, D. Brida, S. Santini, G. Cerullo, and S. Cannistraro
THE JOURNAL OF PHYSICAL CHEMISTRY B 116 4192-4198 (2012).

[97] Surface-enhanced Raman scattering detection of wild-type and mutant p53 proteins at very low concentration in human serum
F. Domenici, A.R. Bizzarri, and S. Cannistraro
ANALYTICAL BIOCHEMISTRY 421 9-15 (2012).

[96] Interaction of an Anticancer Peptide Fragment of Azurin with p53 and its Isolated Domains studied by Atomic Force Spectroscopy
A.R. Bizzarri, S. Santini, E. Coppari, M. Bucciantini, S. Di Agostino, T. Yamada, C. W. Beattie, and S. Cannistraro
INTERNATIONAL JOURNAL OF NANOMEDICINE 6 3011-3019 (2011).

[95] SERS detection of wild-type and mutant p53 proteins at very low concentration in human serum.
F. Domenici, A.R. Bizzarri, and S. Cannistraro
ANALYTICAL BIOCHEMISTRY 42 9-15 (2011).

[94] SERS-based Nanobiosensing for Ultrasensitive Detection of the p53 Tumor Suppressor
F. Domenici, A.R. Bizzarri, and S. Cannistraro
INTERNATIONAL JOURNAL OF NANOMEDICINE 6 2033-2042 (2011).

[93] Modelling the interaction between the p53 DNA-binding domain and the p28 peptide fragment of Azurin
S. Santini, A.R. Bizzarri, and S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION 24 1043-1055 (2011).

[92] Azurin modulates the association of Mdm2 with p53: SPR evidence from interaction of the full-length proteins
F. Domenici, M. Frasconi, F. Mazzei, G. D'Orazi, A.R. Bizzarri, and S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION 24 707-714 (2011).

[91] Free energy evaluation of the p53-Mdm2 complex from the unbinding work measured by Dynamic Force Spectroscopy
A.R. Bizzarri, and S. Cannistraro
PHYSICAL CHEMISTRY CHEMICAL PHYSICS **13** 2738 – 2743 (2011).

[90] Steered Molecular Dynamics Simulations of the Electron Transfer Complex between Azurin and Cytochrome c551
A.R. Bizzarri
JOURNAL PHYSICAL CHEMISTRY B **115** 1211–1219 (2011).

[89] Interaction of p53 with MDM2 and Azurin as studied by Atomic Force Spectroscopy G. Funari, F. Domenici, L. Nardinocchi, R. Puca, G. D'Orazi, A.R. Bizzarri, S. Cannistraro JOURNAL OF MOLECULAR RECOGNITION **23** 343-351 (2010).

[88] The application of Atomic Force Spectroscopy to the study of biological complexes undergoing to a biorecognition process. A.R. Bizzarri, S. Cannistraro.
CHEMICAL SOCIETY REVIEWS (Critical Reviews) **39** 734–749 (2010).
[87] Atomic Force Spectroscopy in biological complexes formation: strategies and perspectives
A.R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICAL CHEMISTRY B (Feature Article) **52** 16449-16463 (2009).

[86] A combined Atomic Force Microscopy Imaging and Docking Study to Investigate the Complex Between p53 DNA Binding Domain and Azurin
A.R. Bizzarri, S. Di Agostino, L. Andolfi, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION **22** 506–515 (2009).

[85] "Surface-enhanced Raman spectroscopy combined with atomic force microscopy for ultrasensitive detection of thrombin"
A.R. Bizzarri, S. Cannistraro
ANALYTICAL BIOCHEMISTRY **139** 145-154 (2009).

[84] "Modelling the interaction between the N-terminal domain of the tumor suppressor p53 and azurin"
M. Taranta, A.R. Bizzarri, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION **22** 215-222 (2009).

[83] Optical and electronic coupling of the redox copper Azurin ITO-coated quartz substrate
A.R. Bizzarri, L. Andolfi, M. Taranta, S. Cannistraro
BIOSENSORS AND BIOELECTRONICS **24** 204-209 (2008).

[82] "Probing the interaction between p53 and the bacterial protein azurin by Single Molecule Force Spectroscop***y***"
M. Taranta, A.R. Bizzarri, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION **21** 63-70 (2008).

[81] "SERS detection of Thrombin by protein recognition using functionalized gold nanoparticles"
A.R. Bizzarri, S. Cannistraro
NANOMEDICINE 3 306-310 (2007).

[80] **"**Statistical analysis of intensity fluctuations in single molecule SERS spectra"
A.R. Bizzarri, S. Cannistraro

PHYSICAL CHEMISTRY CHEMICAL PHYSICS **9** 5315-5319 (2007).

[79] "Docking study and free energy simulation of the complex between p53 DNA-binding domain and azurin"
V. De Grandis, A. R. Bizzarri, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION **20** 215-226 (2007).

[78] "Yeast cytochrome c integrated with electronic elements: a nanoscopic and spectroscopic study down to single molecule level"
I. delfino, B. Bonanni, L. Andolfi, C. Baldacchini, A. R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICS: CONDENSED MATTER **19** 1-18 (2007).

[77] "Functional metalloproteins integrated with conductive substrates: detecting single molecules and sensing individual recognition events"
B. Bonanni, L. Andolfi, A. R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICAL CHEMISTRY B (Feature Article) **111** 5062-5075 (2007).

[76] "Docking and Molecular Dynamics Simulation of the Azurin-Cytochrome c551 Electron Transfer Complex"
A. R. Bizzarri, E. Brunori, B. Bonanni, S. Cannistraro
JOURNAL OF MOLECULAR RECOGNITION **20** 122-131 (2007).

[75] Observation of Terahertz Vibrations in Pyrococcus furiosus Rubredoxin via Impulsive Coherent Vibrational Spectroscopy and Nuclear Resonance Vibrational Spectroscopy - Interpretation by Molecular Mechanics
M. L. Tan, A. R. Bizzarri, Y. Xiao, S. Cannistraro, T. Ichiye, C. Manzoni, G. Cerullo, M. W. W. Adams, F. E. Jenney, Jr., S. P. Cramer
JOURNAL OF INORGANIC BIOCHEMISTRY **101** 375-384 (2007).

[74] Nanoscopic and Redox Characterization of Engineered Horse Cytochrome c Chemisorbed on a Bare Gold Electrode
L.Andolfi, P. Caroppi, A.R. Bizzarri, M. C. Piro, F. Sinibaldi, T. Ferri, F. Polticelli, S. Cannistraro R. Santucci
THE PROTEIN JOURNAL **26** 271-279 (2007).

[73] "Electron Tunneling in a Metal-Protein-Metal Junction investigated by Scanning Tunneling and Conductive Atomic Force Spectroscopies"
L. Andolfi, A. R. Bizzarri, S. Cannistraro
APPLIED PHYSICS LETTERS **89** 183125-183127 (2006).

[72] "Assembling of Redox Proteins on Au(111) Surfaces: a Scanning Probe Microscopy Investigation for Application in Bio-Nanodevice"
L. Andolfi, A. R. Bizzarri, S. Cannistraro
THIN SOLID FILMS **515** 212-219 (2006).

[71] " Quenching and Blinking of fluorescence of single dye bound to gold nanoparticles"
F. Cannone, G. Chirico, A.R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICAL CHEMISTRY B **110** 16491-16498 (2006).

[70] "Temporal fluctuations in Single-Molecule SERS spectra"
A.R. Bizzarri, S. Cannistraro
SURFACE ENHANCED RAMAN SCATTERING-PHYSICS AND APPLICATIONS
Springer: Topics in Applied Physics Vol. 103 Eds. K. Kneipp, M. Moskovitz, H. Kneipp (**Invited Contribution**) (2006).

[69] " Optimized biorecognition of Cytochrome c551 and Azurin immobilized on thiol-terminated monolayers assembled on Au(111) substrates "

B. Bonanni, A.R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICAL CHEMISTRY B **110** 14574-14580 (2006).

[68] "Topological, dynamical and electron transfer properties of copper Azurin anchored to a gold surface as investigated by molecular dynamics simulation"
A.R. Bizzarri
BIOPHYSICAL CHEMISTRY **122** 206-214 (2006).

[67] "Time-dependent study of Single-Molecule SERS signal from Yeast cytochrome c""
I. Delfino, A.R. Bizzarri, S. Cannistraro
CHEMICAL PHYSICS **326** 356-362 (2006).

[66] "Optical Spectroscopic Investigations of the Alkaline Transition in Umecyanin from Horseradish Roots"
I. Delfino, K. Sato, M.D. Harrison, L. Andolfi, A.R. Bizzarri, C. Dennison, S. Cannistraro
BIOCHEMISTRY **44** 16090-16097 (2005).

[65] " SERS and Tunnelling Spectroscopy investigation of iron-protoporphyrin IX adsorbed onto a silver tip"
A.R. Bizzarri, S. Cannistraro
JOURNAL OF PHYSICAL CHEMISTRY B **106** 16571-16574 (2005).

[64] "Single Molecule Recognition between Cytochrome C 551 and Gold-Immobilized Azurin by Force Spectroscopy
B. Bonanni, A. S. Kamruzzahan, A.R. Bizzarri, C. Rankl, H. Gruber, P. Hinterdorfer, and S. Cannistraro
BIOPHYSICAL JOURNAL 89 2783-2791 (2005)

[63] "AFM, STM and Ellipsometry Characterization of a Monolayer of Azurin Molecules Self-Assembled on a Gold Surface in Air"
A.R. Bizzarri,L.Andolfi, M. Stchakovsky, S. Cannistraro
JOURNAL OF NANOTECHNOLOGY **1** 100-110 (2005).

[62] "Electron transfer of Metallo-proteins"
A.R. Bizzarri, S. Cannistraro
ENCYCLOPEDIA OF CONDENSED MATTER PHYSICS (Elsevier Ed.) (**Invited Review**) 2005.

[61] "Levy statistics of vibrational mode fluctuations of single molecules from surface-enhanced Raman scattering"
A.R. Bizzarri, S. Cannistraro
PHYSICAL REVIEW LETTERS **94** 068303-1-068303-4 (2005).

[60] "Redox metalloproteins on metal surface as hybrid system for bio-nanodevices: an extensive characterization at the single molecule level"
B. Bonanni, D. Alliata, L. Andolfi, A.R. Bizzarri and S. Cannistraro
SURFACE SCIENCE RESEARCH DEVELOPMENTS, C.P. Norris, **(Invited Paper)** 2004.

[59] "Single Molecule detection of Yeast Cytochrome c by Surface-Enhanced Raman Spectroscopy"
I. Delfino, A.R. Bizzarri , S. Cannistraro
BIOPHYS. CHEM **113** 41-51 (2005).

[58] "Evidence of Electron-Transfer in the SERS spectra of a single iron-protoporphyrin IX molecule"
A.R. Bizzarri, S. Cannistraro
CHEM. PHYS. LETT **395** 222-226 (2004).

[57] "Neutron Scattering and Molecular Dynamics simulation: a conjugate approach to investigate the dynamics of electron transfer proteins"

A.R. Bizzarri
JOURNAL OF PHYSICS:Condensed Matter (**Topical Review**) **16** R1-R28 (2004).

[56] "Topological and electron transfer properties of yeast cytochrome c adsorbed on bare gold electrode"
B. Bonanni, D. Alliata, A.R. Bizzarri , and S. Cannistraro
CHEMPHYSCHEM **4** 1189-1195 (2003).

[55] "A combined Atomic Force Microscopy and Molecular Dynamics Simulation Study on a Plastocyanin mutant chemisorbed on a gold surface"
A.R. Bizzarri , B.Bonanni, G. Costantini and S. Cannistraro
CHEMPHYSCHEM **4** 1183-1188 (2003).

[54] "Excited state charge-transfer dynamics study of poplar plastocyanin by ultrafast pump-probe spectroscopy and molecular dynamics simulation"
T. Cimei, A.R. Bizzarri and S. Cannistraro
BIOPHYSICAL CHEMISTRY **106** 221-231 (2003).

[53] "'MD Simulation of a Plastocyanin mutant adsorbed onto a gold surface"
A.R. Bizzarri , G. Costantini and S. Cannistraro
BIOPHYSICAL CHEMISTRY **106** 111-123 (2003).

[52] "Temporal fluctuations in the SERRS spectra of single iron-protoporphyrin IX molecule"
A.R. Bizzarri and S. Cannistraro
CHEMICAL PHYSICS **290** 297-306 (2003).

[51] "The low frequency vibrational modes of Green Fluorescent Proteins"
V. Tozzini, A.R. Bizzarri , V. Pellegrini, R. Nifosi, P. Giannozzi, A. Iuliano, S. Cannistraro and F. Beltram
CHEMICAL PHYSICS **287** 33-42 (2003).

[50] "Surface enhanced resonance Raman spectroscopy signals from single myoglobin molecules"
A.R. Bizzarri and S. Cannistraro
APPLIED SPECTROSCOPY **56** 1531-1537 (2002).

[49] "Vibrational coherence in Azurin with impulsive excitation of the LMCT absorption band "
T. Cimei, A.R. Bizzarri, S. Cannistraro, G. Cerullo, S. De Silvestri
CHEM. PHYS. LETT. **362** 497-503 (2002).

[48] "Study of the β relaxation in supercooled confined water "
F. Venturini, M. A. Ricci , P.Gallo, A. R. Bizzarri , S. Cannistraro
PHIL. MAG. B **82** 507-515 (2002).

[47] "Dynamics of Different Hydrogen Classes in β-lactoglobulin: A Quasielastic Neutron Scattering Investigation"
A. Orecchini, , A. Paciaroni, A. R. Bizzarri, S. Cannistraro
J. PHYS. CHEM. B **106**, 7348-7354 (2002)

[46] " Molecular Dynamics of Water at the Protein-Solvent Interface " **Feature Article**
A. R. Bizzarri , S. Cannistraro
J. PHYS. CHEM. B **106** 6617-6633 (2002).

[45] "Temporal fluctuations in the potential energy of proteins: $1/f^{\alpha}$ noise and diffusion"
P. Carlini, A. R. Bizzarri , S. Cannistraro
PHYSICA D **165**, 242-250 (2002).

[44] " Intensity fluctuations of the copper site resonant vibrational modes as observed by MD simulation in single plastocyanin molecule "
A. R. Bizzarri , S. Cannistraro
CHEM. PHYS. LETT. **349**, 503-510 (2001).

[43] "Low frequency vibrational anomalies in β-lactoglobulin: Contribution of different hydrogen classes revealed by inelastic neutron scattering "
A. Orecchini, , A. Paciaroni, A. R. Bizzarri, S. Cannistraro
J. PHYS. CHEM. B **105**, 12150-12156 (2001).

[42] "MD simulation and essential dynamics study of mutated Plastocyanin: structural, dynamical and functional effects of a disulphide bridge insertion at the protein surface"
C. Arcangeli, A. R. Bizzarri , S. Cannistraro
BIOPHYS. CHEM. **92** 183-199 (2001).

[41] "Low frequency vibrational modes in proteins: a neutron scattering investigation"
A. R. Bizzarri , A. Paciaroni, C. Arcangeli, S. Cannistraro
EUR. BIOPHYS. **40** 443-449 (2001).

[40] "Low frequency scattering excess in supercooled confined water "
F. Venturini, P.Gallo, M. A. Ricci, A. R. Bizzarri , S. Cannistraro
J. CHEM. PHYS. **114** 10010-10014 (2001).

[39] "Concerted motion in copper plastocyanin and azurin: an essential dynamics study "
C. Arcangeli, A. R. Bizzarri , S. Cannistraro
BIOPHYS. CHEM. **90** 45-56 (2001).

[38] "Glasslike dynamical behaviour of the plastocyanin hydration water"
A. R. Bizzarri , A. Paciaroni, S. Cannistraro
PHYS. REV. E **62** 3991-3999 (2000).

[37] "A Molecular Dynamics simulation study of the solvent isotope effect on copper plastocyanin"
R. Guzzi, C. Arcangeli, and A. R. Bizzarri
BIOPHYS. CHEM. **82** 9-22 (1999).

[36] "Low frequency vibrational anomalies in hydrated copper azurin: a neutron scattering and MD simulation study"
A. Paciaroni, A. R. Bizzarri , S. Cannistraro
J. MOL. LIQUIDS **84** 3-16 (2000).

[35] "Neutron scattering evidence of a boson peak in protein hydration water"
A. Paciaroni, A. R. Bizzarri , S. Cannistraro
PHYS. REV. E Rapid. Comm. **60** 2476-2479 (1999).

[34] "Incoherent neutron scattering of copper azurin: a comparison with molecular dynamics simulation results»
A. Paciaroni,M.E. Stroppolo, C. Arcangeli, A. R. Bizzarri , A. Desideri, S. Cannistraro
EUR. BIOPHYS. J. **28** 447-456 (1999).

[33] "Long term molecular dynamics simulations of Azurin: structure, dynamics and functionality"
C. Arcangeli, A. R. Bizzarri , S. Cannistraro
BIOPHYS. CHEM. (1999) **78** 247-257 (1999).

[32] "Low frequency anomaly in the hydration water of copper azurin "

A. Paciaroni, A. R. Bizzarri , S. Cannistraro
PHYSICA B. **269** 409-415 (1999).

[31] "Molecular Dynamics Simulation of Inelastic Neutron Scattering Spectra of Copper Azurin Hydration Water "
A. Paciaroni, A. R. Bizzarri , S. Cannistraro
Neutrons and Numerical Methods (N2M), edited by M.R. Johnson, G.J. Kearley and H. Buettner, The American Institute of Physics 142-146 (1999).

[30] "Molecular dynamics simulation of plastocyanin potential energy fluctuations: 1/f noise"
A. R. Bizzarri , S. Cannistraro
PHYSICA A **267** 257-270 (1998).

[29] "Role of interfacial water in the Molecular Dynamics simulated dynamical transition of plastocyanin"
C. Arcangeli, A. R. Bizzarri , S. Cannistraro
CHEM. PHYS. LETT. **291** 7-14 (1998).

[28] "Molecular-dynamics simulation evidences of a boson peak in protein hydration water "
A. Paciaroni, A. R. Bizzarri , S. Cannistraro
PHYS. REV. E **57** R6277-6281 (1998).

[27] "Water dynamical anomalies evidenced by molecular dynamics simulation at the protein-solvent interface "
C. Rocchi, A. R. Bizzarri , S. Cannistraro
PHYS. REV. E **57** 3315-3326 (1998).

[26] "Structural heterogeneity as a common source of spin hamiltonian parameter distribution in metallo-proteins and glasses"
S. Cannistraro , A. R. Bizzarri and R. Guzzi
TRENDS IN CHEMICAL PHYSICS **5** 25-44 (1997), **invited paper**.

[25] "Flickering noise in the potential energy fluctuations of proteins as investigated by MD simulation"
A. R. Bizzarri , S. Cannistraro
PHYS. LETT. A **236** 596-601 (1997).

[24] "Long term Molecular Dynamics Simulation of copper Plastocyanin in water"
A. Ciocchetti, A. R. Bizzarri , S. Cannistraro
BIOPHYS. CHEM. **69** 185-198 (1997) .

[23] "Solvent effects on the distribution of conformational substates in native and azide reacted Cu, Zn superoxide dismutase"
F. Polizio, A. R. Bizzarri , A. Desideri, S. Cannistraro
EUR. BIOPHYS. J. **26** 291-297 (1997).

[22] "An EPR investigation the structural heterogeneity in copper azurin and plastocyanin"
R. Guzzi, A. R. Bizzarri , L. Sportelli, S. Cannistraro
BIOPHYS. CHEM. **63** 211-219 (1997).

[21] "Anisotropy in the Water Anomalous Diffusion around Plastocyanin as Studied by MD Simulation"
A. R. Bizzarri , S. Cannistraro
BIOLOGICAL MACROMOLECULAR DYNAMICS, Proceedings of a Workshop on Inelastic and Quasielastic Neutron Scattering in Biology, Institut Laue-Langevin, Grenoble, France 14-15 October 1996, Eds. S. Cusack, H. Buettner, M. Ferrand, P. Langan, and P. Timmins, Adenine Press, 79-82 (1997).

[20] "Water residence times around copper plastocyanin: a molecular dynamics simulation approach"
C. Rocchi, A. R. Bizzarri , S. Cannistraro

CHEM. PHYS. **214** 261-276 (1997).

[19] "Anomalous and anisotropic diffusion of plastocyanin hydration water"
A. R. Bizzarri , S. Cannistraro
EUROPHYS. LETT. **37** 201-206 (1997).

[18] "Origin of anomalous diffusion observed by MD simulation at the protein-water interface"
A. R. Bizzarri , C. Rocchi and S. Cannistraro
CHEM. PHYS. LETT. **263** 559-566 (1996).

[17] "Molecular dynamics simulation evidence of anomalous diffusion of protein hydration water"
A. R. Bizzarri , S. Cannistraro
PHYS. REV. E **53** R3040-3043 (1996).

[16] "Hydrogen bond analysis by MD simulation of copper plastocyanin at different hydration levels"
A. R. Bizzarri , C. X. Wang, W. Z. Chen, S. Cannistraro
CHEM. PHYS. **201** 463-472 (1995).

[15] " Hyperfine Line Shift in the EPR Spectra of Randomly Oriented Cu(II) containing systems with axial symmetry"
A. R. Bizzarri and S. Cannistraro
MOL. PHYS. **85** 913-929 (1995).

[14] "Spin-lattice relaxation in Moessbauer spectra of metmyoglobin: investigation of crystals, water and water-glycerol solutions "
A. R. Bizzarri , O. A. Iakovleva, F. Parak
CHEM. PHYS. **191** 185-194 (1995).

[13] "Temperature Dependence of the g=6 EPR Linewidth in high Spin FeIII Myoglobin samples"
A. R. Bizzarri and S. Cannistraro
APPL. MAGN. RESONANCE **6** 575-586 (1994).

[12] "Molecular dynamics of Copper Plastocyanin: Simulations of Structure and Dynamics as a Function of Hydration"
C. X. Wang, A. R. Bizzarri, Y.W. Xu and S. Cannistraro
CHEM. PHYS. **183** 1-12 (1994).

[11] "Solvent modulation of the structural heterogeneity in FeIII myoglobin samples: a low temperature EPR investigation"
A.R. Bizzarri and S. Cannistraro.
EUR. BIOPHYS. J. **22** 259-267 (1993).

[10] "An AOM and EPR study of the conformational substate distribution in myoglobin"
A.R. Bizzarri and S. Cannistraro.
Conference ProceedingsVol. **43** 147-150 «Water-Biomolecule Interactions».
M.U. Palma, M.B. Palma-Vittorelli and F. Parak (Eds.) SIF, Bologna 1993.

[9] "Conformational Substate and distribution of the crystal field parameters in heme-proteins"
A.R. Bizzarri and S. Cannistraro.
PHYSICA MEDICA **9** 29-32 (1993).

[8] "Distribution of the iron-heme displacement as resulting from myoglobin conformational substates: an AOM approach to the interpretation of the EPR spectra"
A.R. Bizzarri, M. Bacci and S. Cannistraro

BIOPHYS. CHEM. **46** 117-129 (1993).

[7] "Conformational Substate distribution in low spin ferric myoglobin as studied by electron paramagnetic resonance"
A.R. Bizzarri and S. Cannistraro.
APPL. MAGN. RESONANCE **3** 1033-1043 (1992).

[6] "Conformational Substate distribution in Myoglobin as studied by EPR spectroscopy"
A.R. Bizzarri and S. Cannistraro
BULL. MAGN. RESONANCE **14** 234-239 (1992).

[5] "Solvent effects on Myoglobin Conformational substates as studied by electron paramagnetic resonance"
A. R. Bizzarri and S. Cannistraro
BIOPHYS. CHEM. **42** 79-85 (1992).

[4] "An Electron Paramagnetic Resonance Study of Conformational Substate Distribution in High Spin Heme-Proteins"
A.R. Bizzarri and S. Cannistraro.
APPL. MAGN. RESONANCE **2** 627-645 (1991).

[3] "Convergence Properties of a Modified Hopfield-Tank Model"
A.R. Bizzarri
BIOL. CYBERNETICS **64** 293-300 (1991).

[2] "Electrical Conductivity Behavior of Poly-(L-glutamic acid) in NaCl Electrolyte Solutions. Effect of Polyion Conformation"
A. R. Bizzarri, C. Cametti and F. Bordi
J. PHYS. CHEM. **94** 2166-2171 (1990).

[1] "Counterion Accumulation in Rod-Like Polyelectrolyte Solutions with Added Salt and Manning's Condensation Theory"
A.R. Bizzarri, C. Cametti and A. Di Biasio
BER. BUNSENGES. PHYS. CHEM. **92** 17-21 (1988).

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