Curriculum vitae of : **Prof. Salvatore Cannistraro** Biophysics & Nanoscience Centre Department of Ecology and Biology University of Tuscia, Largo dell'Università

2018- to now Scientific Advisor of Synergie CAD Instruments for Semiconductor-based Biosensing and Senior Associate IMM-CNR;

- **2013-2016** Head of the Research Panel at the University of Tuscia
- 2006-2008 Head of the Internal Panel for Evaluation of Research and Teaching Activity at University of Tuscia
- **1997- to now** Scientific Director of the Biophysics and Nanoscience Centre at the University of Tuscia (Italy)
- **1996-2002** Director of the Biophysics Section and Member of the Scientific Council of the National Institute for Matter Physics (INFM)
- **1993-1996** Head of the Department of Environmental Science, University of Tuscia
- 1991- 2020 Full Professor of Physics, Biophysics & Nanoscience at the Science Faculty, University of Tuscia
- **1986** Visiting scientist at the Physics Dept. University of Illinois, Urbana Champaign
- **1980- 1991** Associate Professor of Molecular Physics at the Physics Dept. of the University of Perugia
- 1977- 1980 Assistant Professor of Biophysics at the Physics Dept. University of Calabria
- **1975- 1977** Post Doc Fellow at the National Institute of Health
- 1975 University of Liegi (Belgium): PhD in Biophysics
- **1972** University of Pisa: Degree (BS+MS) in Physics

Mother tongue(s)

Italian

Other language(s) Self-assessment

English, French

Understanding Speaking Writing European level (*) Listening Reading Spoken Spoken interaction production English Very good Very good fluent Very good French Very good Very good fluent Very good

Membership and Honours

- Member of the American Biophysical Society
- Member of the European Physical Society
- Member of the Italian Society for Applied and Pure Biophysics
- Member of the LESC and PESC Standing Committee of the European Science Foundation (ESF)
- Member of the Steering Committee for Nanomedicine of European Science Foundation
- Member of the Scientific Panel for Neutron Research at ILL
- Member of the Council Board of CNISM (University Network for Matter Physics)
- Member of the Editorial Board of the Int.Journal of Nanomedicine (Dove Press, Usa), J.Nanotechnology, Biosensors,
- Referee of scientific projects by ESF, European Community, INSERM (France), CSIC and ANEP (Spain), SFI (Ireland), DFG (Germany), Czech Science Foundation.
- Referee for the following scientific journal: Phys.Rev.Letts; Phys.Rev.E, J.Phys.Chem., Biophys.Chem., Phys.Chem.Phys., Surf.Sci., JACS, BBA, PCCP, Nanoletters, Biophys. J., Scientific Reports; ACS Sensors,

Areas of Research

-Photophysics of molecules of biological interest. Radiation biophysics (effects of UV, Vis, Rx).

-Spectroscopies (optical, magnetic, neutron) applied to the study of structure and dynamics of biological systems (proteins, nucleic acids, cells) and of biomedical, environmental and biotechnological interest.

-Spectroscopic and molecular dynamics simulation studies of metalloproteins-water and of disordered (glass-like) systems.

-Spectroscopy of single molecule by Atomic Force Microscopy, Scanning Tunnelling Microscopy, Raman Sers, Snom with interest in the development of hybrid systems, bioelectronic devices, bio-nanotechnologies, nanomedicine, optical and semiconductors biosensing.

Its scientific activity is documented by more than 230 peer reviewed papers , several review articles and book chapters. h-index 37; more than 5500 cits.

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List of Recent Publications (2014-2024)

Dynamic Force Spectroscopy and Biomolecular Recognition Editor(s): Anna Rita Bizzarri; Salvatore Cannistraro

232.Botti, V., De Bei, O., Marchetti, M., Campanini, B., Cannistraro, S., Bettati, S., Bizzarri, A.R. Nanoscale dynamical investigation of the hemoglobin complex with the bacterial protein IsdB: is their interaction stabilized by catch bonds? (2024) Nanoscale, 16 (8), pp. 4308-4316.

231.Botti, V., Lavecchia di Tocco, F., Cannistraro, S., Bizzarri, A.R. Hybridization Kinetics of miR-155 on Gold Surfaces as Investigated by Surface Plasmon Resonance and Atomic Force Spectroscopy (2023) ACS Omega, 8 (42), pp. 38941-38949.

230.Botti, V., Cannistraro, S., Bizzarri, A.R. Interaction of miR-155 with Human Serum Albumin: An Atomic Force Spectroscopy, Fluorescence, FRET, and Computational Modelling Evidence (2022) International Journal of Molecular Sciences, 23 (18), art. no. 10728, .

229.Botti, V., Marrone, S., Cannistraro, S., Bizzarri, A.R. Interaction between miR4749 and Human Serum Albumin as Revealed by Fluorescence, FRET, Atomic Force Spectroscopy and Computational Modelling (2022) International Journal of Molecular Sciences, 23 (3), art. no. 1291, .

228.Bizzarri, A.R., Cannistraro, S. Direct interaction of miRNA and circRNA with the oncosuppressor p53: An intriguing perspective in cancer research (2021) Cancers, 13 (23), art. no. 6108, .

227.Bizzarri, A.R., Cannistraro, S. Temperature Modulation of the DBDp53 Structure as Monitored by Static and Time-Resolved Fluorescence Combined with Molecular Dynamics Simulations (2021) Journal of Physical Chemistry B, 125 (36), pp. 10166-10173.

226.Marchetti, M., De Angelis, F.S., Annunziato, G., Costantino, G., Pieroni, M., Ronda, L., Mozzarelli, A., Campanini, B., Cannistraro, S., Bizzarri, A.R., Bettati, S. A competitive o-acetylserine sulfhydrylase inhibitor modulates the formation of cysteine synthase complex (2021) Catalysts, 11 (6), art. no. 700, .

225.Bizzarri, A.R., Cannistraro, S. Toward cancer diagnostics of the tumor suppressor p53 by surface enhanced raman spectroscopy (2020) Sensors (Switzerland), 20 (24), art. no. 7153, pp. 1-19.

224.Bizzarri, A.R., Cannistraro, S. Time-Resolved Fluorescence and Essential Dynamics Study on the Structural Heterogeneity of p53DBD Bound to the Anticancer p28 Peptide (2020) Journal of Physical Chemistry B, 124 (44), pp. 9820-9828.

223.Baldacchini, C., Montanarella, A.F., Francioso, L., Signore, M.A., Cannistraro, S., Bizzarri, A.R. A reliable biofet immunosensor for detection of p53 tumour suppressor in physiological-like environment (2020) Sensors (Switzerland), 20 (21), art. no. 6364, pp. 1-14.

222.Bizzarri, A.R., Cannistraro, S. Investigation of a direct interaction between MiR4749 and the tumor suppressor p53 by fluorescence, fret and molecular modeling (2020) Biomolecules, 10 (2), art. no. 346, .

221.Gianquinto, E., Moscetti, I., De Bei, O., Campanini, B., Marchetti, M., Luque, F.J., Cannistraro, S., Ronda, L., Bizzarri, A.R., Spyrakis, F., Bettati, S.
Interaction of human hemoglobin and semi-hemoglobins with the Staphylococcus aureus hemophore IsdB: a kinetic and mechanistic insight
(2019) Scientific Reports, 9 (1), art. no. 18629, .

220.Moscetti, I., Cannistraro, S., Bizzarri, A.R. Probing direct interaction of oncomiR-21-3p with the tumor suppressor p53 by fluorescence, FRET and atomic force spectroscopy (2019) Archives of Biochemistry and Biophysics, 671, pp. 35-41.

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

Raman evidence of p53-DBD disorder decrease upon interaction with the Anticancer Protein Azurin (2019) International Journal of Molecular Sciences, 20 (12), art. no. 3078, .

218.Bizzarri, A.R., Végh, A.G., Váró, G., Cannistraro, S. Interaction Force Fluctuations in Antigen-Antibody Biorecognition Studied by Atomic Force Spectroscopy (2019) ACS Omega, 4 (2), pp. 3627-3634.

217.Bizzarri, A.R., Moscetti, I., Cannistraro, S. Interaction of the anticancer p28 peptide with p53-DBD as studied by fluorescence, FRET, docking and MD simulations (2019) Biochimica et Biophysica Acta - General Subjects, 1863 (2), pp. 342-350.

216.Bizzarri, A.R., Moscetti, I., Cannistraro, S. Surface enhanced Raman spectroscopy based immunosensor for ultrasensitive and selective detection of wild type p53 and mutant p53R175H (2018) Analytica Chimica Acta, 1029, pp. 86-96.

215.Moscetti, I., Bizzarri, A.R., Cannistraro, S. 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 (2018) International Journal of Nanomedicine, 13, pp. 251-259.

214.Kradolfer, S., Lipiec, E., Baldacchini, C., Bizzarri, A.R., Cannistraro, S., Zenobi, R. Vibrational Changes Induced by Electron Transfer in Surface Bound Azurin Metalloprotein Studied by Tip-Enhanced Raman Spectroscopy and Scanning Tunneling Microscopy (2017) ACS Nano, 11 (12), pp. 12824-12831.

213.Moscetti, I., Cannistraro, S., Bizzarri, A.R. Surface plasmon resonance sensing of biorecognition interactions within the tumor suppressor P53 network (2017) Sensors (Switzerland), 17 (11), art. no. 2680, .

212.Bizzarri, A.R., Baldacchini, C., Cannistraro, S. Structure, Dynamics, and Electron Transfer of Azurin Bound to a Gold Electrode (2017) Langmuir, 33 (36), pp. 9190-9200.

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

210.Signorelli, S., Cannistraro, S., Bizzarri, A.R. Structural Characterization of the Intrinsically Disordered Protein p53 Using Raman Spectroscopy (2017) Applied Spectroscopy, 71 (5), pp. 823-832.

209.Signorelli, S., Santini, S., Yamada, T., Bizzarri, A.R., Beattie, C.W., Cannistraro, S. Binding of Amphipathic Cell Penetrating Peptide p28 to Wild Type and Mutated p53 as studied by Raman, Atomic Force and Surface Plasmon Resonance spectroscopies (2017) Biochimica et Biophysica Acta - General Subjects, 1861 (4), pp. 910-921.

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

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

206.Moscetti, I., Teveroni, E., Moretti, F., Bizzarri, A.R., Cannistraro, S.

MDM2–MDM4 molecular interaction investigated by atomic force spectroscopy and surface plasmon resonance (2016) International Journal of Nanomedicine, 11, pp. 4221-4229.

205.Coppari, E., Santini, S., Bizzarri, A.R., Cannistraro, S. Kinetics and binding geometries of the complex between β2-microglobulin and its antibody: An AFM and SPR study (2016) Biophysical Chemistry, 211, pp. 19-27.

204.Llauró, A., Coppari, E., Imperatori, F., Bizzarri, A.R., Castón, J.R., Santi, L., Cannistraro, S., De Pablo, P.J. Calcium Ions Modulate the Mechanics of Tomato Bushy Stunt Virus (2015) Biophysical Journal, 109 (2), pp. 390-397.

203.Baldacchini, C., Kumar, V., Bizzarri, A.R., Cannistraro, S. Electron tunnelling through single azurin molecules can be on/off switched by voltage pulses (2015) Applied Physics Letters, 106 (18), art. no. 183701, .

202.Yamada, T., Signorelli, S., Cannistraro, S., Beattie, C.W., Bizzarri, A.R. Chirality switching within an anionic cell-penetrating peptide inhibits translocation without affecting preferential entry (2015) Molecular Pharmaceutics, 12 (1), pp. 140-149.

201.Bizzarri, A.R., Cannistraro, S. Antigen-antibody biorecognition events as discriminated by noise analysis of force spectroscopy curves (2014) Nanotechnology, 25 (33), art. no. 335102, .

200.Lanzellotto, C., Favero, G., Antonelli, M.L., Tortolini, C., Cannistraro, S., Coppari, E., Mazzei, F. Nanostructured enzymatic biosensor based on fullerene and gold nanoparticles: Preparation, characterization and analytical applications

(2014) Biosensors and Bioelectronics, 55, pp. 430-437.

199.Coppari, E., Yamada, T., Bizzarri, A.R., Beattie, C.W., Cannistraro, S. A nanotechnological, molecular-modeling, and immunological approach to study the interaction of the antitumorigenic peptide p28 with the p53 family of proteins (2014) International Journal of Nanomedicine, 9 (1), pp. 1799-1813.

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