SIBPA

Società Italiana di Biofisica Pura e Applicata

XXVIII Congresso Nazionale
CATANIA | 13-16 LUGLIO 2026
Monastero dei Benedettini

Sponsors

Opening Lecture

Copani Agata

Department of Drug and Health Sciences, University of Catania

Keynote speaker

De Pinto Vito

Department of Biomedical and Biotechnological Sciences, University of Catania

Invited speakers

De Luca Anna Chiara

Institute of Endotypes in Oncology, Metabolism and Immunology "G. Salvatore" (IEOMI), Italy

Ferguson Dougal

University of Manchester, United Kingdom

Foderà Vito

University of Copenhagen, Denmark

Khalid Syma

University of Oxford, United Kingdom

Schirò Giorgio

CNRS and IBS, University of Grenoble, France

Programma in sintesi

	Lun 13 Luglio	Mar 14 Luglio	Mer 15 Luglio	Gio 16 Luglio
9:00		***Cell and Tissue Biophysics***	***Molecular Biophysics***	***Theor. and Comp. Biophysics***
9:30		*Dougal Ferguson*	*Giorgio Schiro'*	*Syma Khalid*
10:00		*oral communications*	*oral communications*	*oral communications*
10:30				
11:00		*coffee break*	*coffee break*	*coffee break*
11:30		***Applied Biophysics***	***Nanoscale Biophysics***	**cerimonia premi**
12:00		*Vito Fodera'*	*Anna Chiara De Luca*	
12:30		*oral communications*	*oral communications*	
13:00				chiusura del congresso
13:30		*lunch*	*lunch*	
14:00				
14:30		*Poster session 1*	*Poster session 2*	
15:00	***Registration***			
15:30				
16:00		*coffee break*	*coffee break*	
16:30		***Assemblea dei soci***	*Vito De Pinto*	
17:00	***Opening***			
17:30	*Agata Copani*		***Sessione giovani soci SIBPA***	
18:00				
18:30	*Cocktail di benvenuto*			
19:00				
19:30				
20:00			***Cena sociale***	

Sede del congresso

Monastero dei Benedettini di San Nicolò l'Arena

Il Monastero dei Benedettini, fondato nel 1558 dai monaci cassinesi, è uno dei più importanti esempi di tardo barocco siciliano e rappresenta un intreccio di diverse epoche storiche. Originariamente aveva una struttura quadrata con il Chiostro dei Marmi, decorato con colonne in marmo di Carrara e motivi rinascimentali. Nel 1669 l'eruzione dell'Etna colpì la città di

Catania: la colata lavica raggiunse il monastero, distruggendo la chiesa annessa e modificando profondamente il paesaggio circostante, coperto da uno spesso strato di lava. La lava del 1669 è ancora visibile dal lato ovest dell'edificio. Nel 1693 un devastante terremoto distrusse gran parte della Sicilia orientale e danneggiò gravemente anche il monastero, del quale rimasero integri solo il piano interrato e parte del primo piano. Dal 1702 iniziò la ricostruzione e l'ampliamento del complesso. Furono aggiunti il Chiostro di Levante, giardini pensili, nuove aree comuni e la monumentale chiesa di San Nicolò l'Arena, rimasta incompiuta nella facciata principale. Grazie al contributo di importanti architetti siciliani, tra cui Giovan Battista Vaccarini, il monastero divenne uno dei conventi più grandi d'Europa. Oggi il monastero testimonia, attraverso la sua architettura, le trasformazioni causate da eruzioni, terremoti e successivi usi civili dopo l'Unità d'Italia.

Lunedì 13 Luglio 2026

14:30-17:00 **Registrazione**

17:00-17:15 **Saluti Istituzionali**

17:15-17:30 **Saluti della SIBPA – Apertura del Congresso**

17:40-18:30 **Opening lecture**

Agata Copani

The Conformational Landscape of Beta-Amyloid: When It Protects and When It Destroys in Alzheimer's Disease

18:30-19:30 **Cocktail di Benvenuto**

Martedì 14 Luglio 2026

Sessione di Cell and Tissue Biophysics

Chairs: **Valentina Notarstefano** (Teramo), **Alberto Diaspro** (Genova)

09:00-09:30 **Relazione su invito**

Dougal Ferguson

Full fingerprint tissue imaging within clinical timeframes using quantum cascade lasers

Comunicazioni orali

09:30-09:45 **Fulvio Bonsignore,** "BULK AND SINGLE-CELL ANALYSIS OF TAMOXIFEN-TREATED CANCER CELLS REVEALS A P53-LINKED MORPHOLOGY SWITCH TOWARDS A PERSISTER PHENOTYPE"

09:45-10:00 **Matteo Mariangeli,** "AXONAL MICROTUBULES ARE A FORCE SENSOR IN NEURONS"

10:00-10:15 **Alessandra Anna Passeri,** "PIEZO1-INDUCED MODIFICATIONS ON CELLULAR MECHANICS AND MORPHOLOGY REVEALED BY BRILLOUIN SPECTROSCOPY AND 3D CONFOCAL FLUORESCENCE IMAGING"

10:15-10:30 **Francesco Stellato,** "FOLLOWING PLATINUM: X-RAY ABSORPTION SPECTROSCOPY INSIGHTS INTO THE ACTIVATION AND FATE OF PT(IV) ANTICANCER PRODRUGS IN VIVO"

10:30-10:45 **Cristiano Viappani,** "A CHIMERIC NITRIC OXIDE SENSOR FOR FLUORESCENCE LIFETIME IMAGING"

10:45-11:00 **Cristiana Alberghina,** "EVALUATION OF THE THERAPEUTIC POTENTIAL AND BIOLOGICAL IMPACT OF B-EMITTING RADIONUCLIDES IN TARGETED BREAST CANCER TREATMENT"

11:00-11:30 **Coffee break**

Sessione di Applied Biophysics

Chairs: **Ines Delfino** (Viterbo), **Rita Carrotta** (Palermo)

11:30-12:00 **Relazione su invito**

Vito Foderà

DECIPHERING ANTIBODY STABILITY BY SMALL ANGLE X-RAY SCATTERING AND MOLECULAR SIMULATIONS

Comunicazioni orali

12:00-12:15 **Valentina Iacono,** "ONE POT LASER-DRIVEN FUNCTIONALIZATION OF CU NANOPARTICLES AND OPTIMIZATION FOR ALPHA-SYNUCLEIN ELECTROCHEMICAL BIOSENSING"

12:15-12:30 **Antonella Battisti,** "LABEL-FREE AND REAL-TIME MONITORING OF PLANT PHENOLS BY QCM-D AND FLIM-ϕ "

12:30-12:45 **Valentina Romanelli,** "PANORAMIC OPTOGENETICS: SHAPING WHOLE-HEART ELECTROPHYSIOLOGY USING CUSTOMIZABLE ILLUMINATION PATTERNS"

12:45-13:00 **Elena Del Favero,** "MAGNETIC POLYMERIC SCAFFOLDS FOR THE MECHANOTRANSDUCTION STIMULATION IN TENDON TISSUE REGENERATION"

13:00-13:15 **Anna Fricano,** "TUNING GOLD NANOPARTICLES FORMATION THROUGH PROTEIN SELF-ASSEMBLY"

13:15-13:30 **Letizia Marchesi,** "LABEL-FREE 3D ANALYSIS AND CLASSIFICATION OF POLLEN GRAINS BY LIGHT SCATTERING AND CAVITATION MICROSTREAMING"

13:30-14:30 **Lunch break**

14:30-16:00 **Poster session 1**

16:00-16:30 **Coffee break**

16:30-17.30 **Assemblea Straordinaria dei soci**

17:30-18:30 **Assemblea Ordinaria dei soci**

Mercoledì 15 Luglio 2026

Sessione di Molecular Biophysics

Chairs: **Valeria Vetri** (Palermo), **Stefania Abbruzzetti** (Parma)

09:00-09:30 **Relazione su invito**

Giorgio Schirò

Observing the photoactivation mode of a B12 based photoreceptor in real time

Comunicazioni orali

09:30-09:45 **Francesco Simone Ruggeri,** "UNRAVELLING PROTEIN SELF-ASSEMBLY IN NEURODEGENERATION VIA NANO-CHEMICAL IMAGING & SPECTROSCOPY"

09:45-10:00 **Muhammad Abubakar,** "SPATIO-TEMPORAL MAPPING OF LIPOSOMAL DOXORUBICIN IN 3D SPHEROIDS USING FLUORESCENCE LIFETIME IMAGING MICROSCOPY"

10:00-10:15 **Diego Sali,** "CHEMICAL IMAGING AND MOLECULAR SPECTROSCOPY: THE DEFINITIVE APPROACH"

10:15-10:30 **Brigitte M. Merino,** "AQUEOUS HSA-PEG SOLUTIONS UNDER REPEATED TEMPERATURE CYCLES: LIQUID-LIQUID PHASE SEPARATION AND PROPERTIES OF THE DISPERSED AND CONDENSED PHASES"

10:30-10:45 **Elisa Bonaccorso,** "PROBING DISEASE-INDUCED PERTURBATIONS IN MEMBRANE HYDRATION WATER BY INFRARED SPECTROSCOPY"

10:45-11:00 **Tom Fillot,** "ROLE OF CHROMATIN REORGANIZATION AND ACCESSIBILITY ON THE TRANSCRIPTION FACTOR SEARCH MECHANISM UPON SENESCENCE INDUCTION"

11:00-11:30 **Coffee break**

Sessione di Nanoscale Biophysics

Chairs: **Caterina Ricci** (Milano), **Paolo Bianchini** (Genova)

11:30-12:00 **Relazione su invito**

Anna Chiara De Luca

SERS PLATFORMS FROM INTRACELLULAR SENSING TO IN VIVO IMAGING AND DIAGNOSTICS

Comunicazioni orali

12:00-12:15 **Paola Brocca,** "THE ROLE OF SURFACE IONS IN GENERATING NANOMETRIC CAPILLARY WAVES AS OBSERVED BY THE LIQUID INTERFACE FORCE INTERFEROMETER (LIFI)"

12:15-12:30 **Sara Anselmo,** "ROLE OF THE HYDRATION IN PROTEIN PHASE SEPARATION AND AMYLOID-LIKE MATURATION OF CONDENSATE"

12:30-12:45 **Vittorio Parenti,** "NANOSCALE CYTOSKELETAL ARCHITECTURE OF VISCERAL MYOPATHIES REVEALED BY SUPER-RESOLUTION FILAMENT ANALYSIS"

12:45-13:00 **Pietro Delcanale,** "APTAMER-BASED TRACKING OF C-MET RECEPTORS THROUGH AFFINITY MODULATION"

13:00-13:15 **Maddalena De Ros,** "A TALE OF MOLECULAR RECOGNITION: SINGLE-MOLECULE FORCE SPECTROSCOPY TO INVESTIGATE THE BINDING OF THYMIDYLATE SYNTHASE TO ITS OWN MRNA AT THE NANOSCALE LEVEL"

13:15-13:30 **Manuel Orlando,** "SPOT-VARIATION FLUORESCENCE CORRELATION SPECTROSCOPY (FCS) BASED ON IMAGE SCANNING MICROSCOPY (ISM)"

13:30-14:30 **Lunch break**

14:30-16:00 **Poster session 2**

16:00-16:30 **Coffee break**

16:30-17:00 **Keynote lecture**

Vito De Pinto

VOLTAGE DEPENDENT ANION-SELECTIVE CHANNEL (VDAC): FROM FUNCTION TO STRUCTURE TO FUNCTION

Sessione Giovani Soci SIBPA

Chairs: **Maddalena De Ros** (Padova), **Alessandra Anna Passeri** (Perugia), **Giorgia Puleo** (Palermo)

17:30-18:00 **Domenico Calabrò,** "LIGHT-DRIVEN A-FE2O3/AU MICRO/NANOROBOTS AS A MODEL ACTIVE PLATFORM FOR COLLECTIVE INTERACTION AND DYNAMIC SELF-ASSEMBLY"

20:30 **Cena sociale:** Ristorante "Canni e Pisci", via Museo Biscari 8

Giovedì 16 Luglio 2026

Sessione di Theoretical and Computational Biophysics

Chairs: **Velia Minicozzi** (Roma), **Paolo Calligari** (Roma)

09:00-09:30 **Relazione su invito**

Syma Kalid

COMPUTATIONAL MICROBIOLOGY: THE QUEST TO CHARACTERISE THE CELL ENVELOPE OF GRAM- NEGATIVE BACTERIA

Comunicazioni orali

09:30-09:45 **Gianluca Lattanzi,** "INTEGRATING MOLECULAR SIMULATIONS WITH EXPERIMENTS: CHALLENGES IN COMPLEX BIOMOLECULAR SYSTEMS"

09:45-10:00 **Vincenzo Martorana,** "RECONCILING MOLECULAR DYNAMICS RESULTS WITH EXPERIMENTAL EVIDENCE. THE CASE OF MMACHC, A VITAMIN B12 ENZYME"

10:00-10:15 **Andrea Ciccolo,** "MONOMER-LEVEL CONFORMATIONAL LANDSCAPES OF Aβ40 AND Aβ42 AND THEIR DIFFERENTIAL AMYLOIDOGENIC PROPENSITY"

10:15-10:30 **Amit Kumawat,** "MAPPING BINDING LANDSCAPE OF ALLOSTERIC INHIBITOR G6PDI-1 ON HUMAN G6PD"

10:30-10:45 **Alessandro Fiasconaro,** "G-QUADRUPLEX UNFOLDING PATHWAYS IN MOLECULAR DYNAMICS AND COMPLEX MARKOV NETWORK ANALYSIS"

10:45-11:00 **Larbi Touije,** "DEEP GENERATIVE MODELS FOR NUCLEAR CHROMATIN PREDICTION FROM LABEL FREE WITH BIOLOGICALLY GROUNDED EVALUATION"

11:00-11:30 **Coffee break**

11:30-13:00 **Cerimonia dei premi -**

Chairs: **Velia Minicozzi** (Roma), **Settimo Termini** (Palermo)

11:45-12:00 **Premio** *"Antonio Borsellino"*

Sabrina Zappone, "Photon-resolved microscopy to study protein and RNA dynamics in biomolecular condensates"

12:00-12:15 **Premio** *"Gianfranco Menestrina"*

Irene Cazzaniga, "Temperature dependence of the intrinsic dimension of the protein dynamics manifold"

12:15-12:30 **Premio** *"Marina Diana Mercurio"*

Elena Cattaneo

12:30-13:00 **Chiusura del congresso**

Posters

Session 1

Applied Biophysics

P1. Margaux Bouzin, Thermal and nonlinear damage in three-photon excitation microscopy

P2. Francesco Giardini, High-throughput, high-fidelity reconstruction of whole mouse-heart cytoarchitecture at cellular scale

P3. Rosanna Mosetti, IR spectroscopy and machine learning for automated classification of post-consumer polymers

P4. Angela Paterna, Integrated spectroscopic and chromatographic profiling of extracellular vesicle lipids across biological systems

P5. Giorgia Puleo, Polysaccharide-based films loaded with ICG j-aggregates as nir-responsive biomaterials for antimicrobial photodynamic therapy

P6. Giorgia Puleo, Sustainable lignin-based nanofibrous systems with tunable properties probed by fluorescence lifetime imaging

P7. Francesco Stellato, Eupraxia@SPARC lab biological applications: from coherent imaging to coulomb explosion imaging

Cell and Tissue Biophysics

P1. Ines Delfino, AZE-exposure effects on chinese hamster ovary cells as detected by FT-IR microspectroscopy

P2. Chourouk Joumaa, Physiological regulation of endothelial redox balance by mediterranean diet derived bioactive compounds

P3. Martina Ruglioni, Biological and biophysical characterization of polyhomeotic polycomb proteins in thyroid cells

P4. Laura Vergani, An integrated *in silico* and experimental approach combining molecular docking and calux assay to investigate PPARY-polyphenol interactions

P5. Giulia Valenti, Label-free microfluidic approach for cell treatment effect assessment against gold-standard assays

Molecular Biophysics-1

P1. Stefania Abbruzzetti, Single-molecule quantification of human hemoglobin binding to Staphylococcus aureus

P2. Ranieri Bizzarri, Intranuclear dynamics and mesoscale assembly of polyhomeotic 2 chromatin remodeler

Session 2

Molecular Biophysics-2

P3. Chiara Innamorati, An integrated computational and experimental framework for peptide-based inhibition of SHP2 protein–protein interactions

P4. Andrea Lombardo, Self-assembly pathways of intrinsically disordered glycomacropeptide

P5. Andrea Mussini, Photosensitizers in disguise: new probes for Single Molecule Localization Microscopy

P6. Ana Svetic, Revealing membrane nanodomains in GUV and GPMV patches by atomic force microscopy

P7. Francesco Troisi, Amyloid aggregation in the presence of mechanical stress and hydrophobic interfaces

Nanoscale Biophysics

P1. Paolo Bianchini, Effects of hypericin on phase organization and mechanics of viral-mimicking membranes

P2. Ines Delfino, Nanoscale characterization of nuclear architecture alterations induced in neuroblastoma cells by X-rays

P3. Francesco Garzella, Engineering and spectroscopic characterization of reversibly switchable fluorescent protein indicators for functional Super-Resolution Microscopy

P4. Elisa Longo, Multimodal FLIM-FRET and environment-sensitive probes imaging for the study of chromatin architecture

P5. Silvia Scalisi, Playing with the space–time–photon trade-off: 4C and line-scan-4C spectral phasor imaging for live-cell applications

P6. Martina Simeone, Hypericin-virus interactions studied by advanced fluorescence microscopy: a comparative analysis of enveloped rna viruses

Theoretical and Computational Biophysics

P1. Eleonora Alfinito, Re-examining permittivity in hydrated proteins: easy-to -use micro and macro descriptions

P2. Maqsood Ali, Neural circuit visualizer: a WEB-based platform for simulation and visualization of full-scale point-neuron brain models

P3. Stefania Alleva, From qm to xas: a computational study of cu–amyloid-β complexes

P4. Valentina Carpentieri, The accumulation of extracellular K+ as in vivo model of epilepsy in Ca1 pyramidal neurons

P5. Paola Vitale, Biophysical and Adaptive GLIF Modeling of CA1 Pyramidal Neurons in AICD-Induced Alzheimer's Disease in Mice

Sessioni Tematiche:

Applied Biophysics (chairs: Ines Delfino, Rita Carrotta)

Cell and Tissue Biophysics (chairs: Valentina Notarstefano, Alberto Diaspro)

Molecular Biophysics (chairs: Valeria Vetri, Stefania Abbruzzetti)

Nanoscale Biophysics (chairs: Caterina Ricci, Paolo Bianchini)

Theoretical and Computational Biophysics (chairs: Velia Minicozzi, Paolo Calligari)

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