



Monday, 20<sup>th</sup> June 2022

	<i>ROOM</i>	<i>FLOOR</i>
<b>08:00 REGISTRATION</b>	<i>Main Hall</i>	<i>0</i>
<b>09:00 WELCOME OPENING CEREMONY</b>	<i>Mitxelena Auditorium</i>	<i>0</i>
<b>PLENARY LECTURE 1</b>	<i>Mitxelena Auditorium</i>	<i>0</i>
Chairs: Armindo Salvador (CNC / UC, Coimbra, PT) and Ana M. Gil (Dept. Chemistry / UA, Aveiro, PT)		
<b>09:30 PL1 – José María Delfino</b> (IQUIFIB-School of Pharmacy and Biochemistry / UBA, Buenos Aires, AR)		
<i>The coming of age of sparse surface methylation to probe protein conformation and interactions.</i>		
<b>10:30 COFFEE BREAK</b>		
<b>SYMPOSIUM 1 – New and Notable Biophysics - Special Session - High Impact work from Spain and Portugal</b>	<i>Mitxelena Auditorium</i>	<i>0</i>
Chairs: Aitziber L. Cortajarena (CICbiomaGUNE, Donostia-San Sebastián, ES) and Hugo Filipe (CPIRN / ESS-IPG, Guarda, PT)		
<b>11:00 S1.1 – Dr. Diana Lousa</b> (ITQB NOVA / UNL, Oeiras, PT)		
<i>Targeting the SARS-CoV-2 spike protein: from fundamental research to tailor-made biopharmaceuticals.</i>		
<b>11:25 S1.2 – Dr. Edurne Rujas</b> IBF (UPV/EHU, CSIC) - FBB, Leioa, ES		
<i>Multabodies: Ultrapotent biologics resilient to viral escape.</i>		

- 11:50 S1.3 – Dr. Michael Krieg** (ICFO, Castelldefels, ES)  
*A rigidity transition of MEC-2/Stomatin condensates governs mechanotransduction during touch.*
- 12:15 S1.OC1 – Alejandro Valbuena** (CBM Severo Ochoa / UAM-CSIC, Madrid, ES)  
*A Genetically Engineered, Chain Mail-Like Nanostructured Protein Material with Increased Fatigue Resistance and Enhanced Self-Healing.*
- 12:30 S1.OC2 – Claire Valotteau** (LAI / CNRS, Marseille, FR)  
*Acoustic force spectroscopy, a new tool to measure suspended cell mechanics.*

## SYMPOSIUM 2 – Biophysics and Biomedicine (Biophysics and Health)

Mitxelena Auditorium 0

Chairs: Antonio Vicente Ferrer (IDiBE / UMH, Elche, ES) and Sandra Macedo-Ribeiro (i3S-IBMC / UP, Porto, PT)

- 12:45 S2.1 – Dr. Akhilesh Rai** (CNC / UC, Coimbra, PT)  
*Antimicrobial peptide-based nanoformulations: Fight bacteria and promote skin regeneration.*
- 13:10 S2.2 – Dr. Asia Fernández** (IDiBE / UMH, Elche, ES)  
*In vitro pre-clinical nociceptor model: useful tool for modelling Paclitaxel Induced-Neuropathic Pain.*
- 13:35 S2.3 – Sandra Macedo-Ribeiro** (i3S-IBMC / UP, Porto, PT)  
*Ataxin-3 self-assembly inhibitors to treat Machado-Joseph disease: Challenges and opportunities.*
- 14:00 S2.OC1 – Inés Martínez** (CNIC, Madrid, ES)  
*Structural basis of domain destabilization by dilated-cardiomyopathy-causing missense mutations in titin.*
- 14:15 S2.OC2 – Sara Alicante** IBF (UPV/EHU, CSIC) - FBB, Leioa, ES  
*Ion channel based development of biosensors for discovering improved treatments for amyotrophic lateral sclerosis.*

## SYMPOSIUM 3 – Protein Structure, Dynamics and Function

Baroja Room 2

Chairs: Douglas Laurents (IQFR-CSIC, Madrid, ES) and Diana Lousa (ITQB NOVA / UNL, Oeiras, PT)

- 12:45 S3.1 – Pedro Pereira** (i3S-IBMC / UP, Porto, PT)  
*Flexible, decorated and tight - a new breed of natural anticoagulants.*
- 13:10 S3.2 – Beatriz Herguedas** (BIFI / UZ, Zaragoza, ES)  
*Structural bases of AMPA receptor opening and desensitization.*
- 13:35 S3.3 – Dr. Miguel Mompeán** (IQFR-CSIC, Madrid, ES)  
*NMR studies of an assembling necrosome complex.*
- 14:00 S3.OC1 – Carlos Fernández-Tornero** (CIB Margarita Salas-CSIC, Madrid, ES)  
*Mechanism of FtsZ assembly revealed by filament structures in different nucleotide states.*
- 14:10 S3.OC2 – Agata Bak** (CNIC, Madrid, ES)  
*Intramolecular crosslinks in titin advanced glycation end products stiffen the diabetic cardiomyocyte.*
- 14:20 S3.OC3 – Iana Lychko** (FCT NOVA / UNL, Caparica, PT)  
*Self-assembly analysis of cephalopod-specific intrinsically disordered structural proteins.*

**14:30 LUNCH**

**PLENARY LECTURE 2**

Mitxelena 0  
Auditorium

Chairs: Iban Ubarretxena Director of IBF (UPV/EHU, CSIC) - FBB, Leioa, ES, and Ana M. Gil (Dept. Chemistry / UA, Aveiro, PT)

- 16:00 PL2 – Rafael Yuste** (Neurotechnology Center-Dept. of Biological Sciences / Columbia University, New York, US)  
*Voltage compartmentalization by dendritic spines in vivo.*

**SYMPOSIUM 4 – Nucleic Acids and Supramolecular Complexes**

Mitxelena 0  
Auditorium

Chairs: Mikel Valle (CICbioGUNE, Derio, ES) and Ana Cecília A. Roque (UCIBIO-i4HB, FCT NOVA / UNL, Caparica, PT)

- 17:00 S4.1 – Oscar Llorca** (CNIO, Madrid, ES)  
*CryoEM, structure and regulation of a Multipurpose Chaperone and Scaffold Complex.*
- 17:25 S4.2 – Marc Rico** (Faculty of Physics / UB, Barcelona, ES)  
*Temperature-dependent DNA folding landscape measured from single-molecule force experiments.*

- 17:50 S4.3 – Dr. João Borges** (CICECO-Aveiro Institute of Materials / UA, Aveiro, PT)  
*Supramolecular Design of Modular Bioinstructive Multicomponent Biomaterials for Regenerative Medicine.*
- 18:15 S4.OC1 – Salvatore Assenza** (UAM, Madrid, ES)  
*Accurate sequence-dependent coarse-grained model for conformational and elastic properties of double-stranded DNA.*
- 18:30 S4.OC2 – Sara De Bragança** (CNB-CSIC, Madrid, ES)  
*APLF and long non-coding RNA NIHCOLE stabilize DNA-ends bridging in non-homologous end-joining.*

## 2022 SBE AND SPBf PRIZES

Baroja 2  
Room

Chairs: Prof. José María Valpuesta (CNB-CSIC, Madrid, ES) and Manuel Prieto (iBB-IST / UL, Lisbon, PT)

- 17:00 Aw. 1 - SPBf Young Biophysicist Prize 2022**  
**Tatiana Cereija** (i3S-IBMC / UP, Porto, PT)  
*C-di-AMP activates the potassium exporter KhtTU.*
- 17:25 Aw. 2 - Premio “Manuel Rico” – Bruker SBE**  
**Ismael Mingarro** (BIOTECMED / UV, Burjassot, ES)  
*Toward a biological hydrophobicity scale for proteins at membrane interfaces.*
- 17:50 Aw. 3 - Premio “Enrique Pérez-Paya” – SBE40**  
**Javier García-Nafría** (BIFI / UZ, Zaragoza, PT)  
*Molecular mechanisms of G protein-coupled receptors - a cryo-electron microscopy approach.*
- 18:15 Aw. 4 - Premio Antalgénics – SBE33**  
**Ricard Alert** (Max Planck Institute for the Physics of Complex Systems, Dresden, DE)  
*From topological defects to fruiting bodies in bacterial colonies.*

## 21:00 CONFERENCE DINNER

Hotel Meliá

# Tuesday, 21<sup>st</sup> June 2022

		ROOM	FLOOR
08:00	<b>REGISTRATION</b>	Main Hall	0
	<b>PLENARY LECTURE 3</b>	Mitxelena Auditorium	0
	Chairs: Alicia Alonso IBF (UPV/EHU, CSIC) - FBB, Leioa, ES, and Ana M. Gil (Dept. Chemistry / UA, Aveiro, PT)		
09:00	<b>PL3 – Joshua Zimmerberg</b> (National Institutes of Health, Maryland, US) <i>Aggregation of the fusion peptide of influenza HA alters membrane structure and hydration to promote poration.</i>		
10:00	<b>COFFEE BREAK</b>		
	<b>SYMPOSIUM 5 – Cell and Tissue Biophysics</b>	Mitxelena Auditorium	0
	Chairs: Carlo Manzo (UVic / UCC, Barcelona, ES) and Nuno Santos (IMM / UL, Lisbon, PT)		
10:30	<b>S5.1 – Patricia González</b> (IBIS / US-CSIC, Seville, ES) <i>Disruption of mitochondrial complex I induces progressive parkinsonism.</i>		
10:55	<b>S5.2 – Félix Campelo</b> (ICFO, Castelldefels, ES) <u>Awardee - Premio “Enrique Pérez-Payá” – SBE40</u> <i>The biophysics of bulky cargo export from the endoplasmic reticulum.</i>		
11:20	<b>S5.3 – Elías H. Barriga</b> (Gulbenkian Institute of Science, Oeiras, PT) <i>Lowering cell clusters stiffness allows the onset of collective cell migration in vivo.</i>		
11:45	<b>S5.OC1 – Carla Huerta-López</b> (CNIC, Madrid, ES) <i>Cell response to substrate energy dissipation supersedes rigidity sensing.</i>		
12:00	<b>S5.OC2 – Daniela Bispo</b> (CICECO-Aveiro Institute of Materials / UA, Aveiro, PT) <i>The effect of osteogenic differentiation on endo- and exometabolomes of human mesenchymal stem cells.</i>		
	<b>SYMPOSIUM 6 – Membrane Structure and Function</b>	Baroja Room	2
	<i>"In Memoriam of Prof. Juan Carmelo Gomez Fernandez, pioneer of Iberian membrane biophysics"</i> Chairs: Antonio Vicente Ferrer (IDiBE / UMH, Elche, ES) and Maria João Moreno (CQC / UC, Coimbra, PT)		

- 10:30 S6.1 – Fabio Fernandes** (IBB-IST / UL, Lisbon, PT)  
*Structure and organization of phosphatidylinositol 4,5-bisphosphate nanodomains.*
- 10:55 S6.2 – Luis Martínez-Gil** (BIOTECMED / UV, Burjassot, ES)  
*Targeting transmembrane domain interactions, an effective new approach for the design of BclxL inhibitors.*
- 11:20 S6.3 – Alicia Alonso** IBF (UPV/EHU, CSIC) - FBB, Leioa, ES  
*The initial steps of autophagy and the role lipids in autophagosome elongation.*
- 11:45 S6.OC1 – Pablo Carravilla** (Leibniz Institute of Photonic Technology, Jena, DE)  
*Single-molecule super-resolution studies of lipid mobility and packing with MINFLUX microscopy.*
- 12:00 S6.OC2 – Armando Maestro** CFM (UPV/EHU-CSIC), Donostia-San Sebastián, ES  
*Strikingly different roles of SARS-CoV-2 fusion peptides uncovered by neutron scattering.*

## SYMPOSIUM 7 – Systems Biophysics

Baroja 2  
Room

Chairs: Iban Ubarretxena Director of IBF (UPV/EHU, CSIC) - FBB, Leioa, ES, and Armindo Salvador (CNC / UC, Coimbra, PT)

- 12:15 S7.1 – Javier Fernández-Martínez** Ikerbasque Research Associate at IBF (UPV/EHU, CSIC) - FBB, Leioa, ES  
*Comprehensive structure and functional adaptations of the nuclear pore complex.*
- 12:40 S7.2 – Jerome Solon** IBF (UPV/EHU, CSIC) - FBB, Leioa, ES  
*Closing the gap: Control of cell shape changes and mechanical tension during epithelial sealing.*
- 13:05 S7.3 – Francisco Pinto** (BioISI / UL, Lisbon, PT)  
*Exploring cancer tissue specificities through protein physical interaction networks.*
- 13:30 S7.OC1 – Hugo Filipe** (CPIRN / ESS-IPG, Guarda, PT)  
*Interaction of near infrared (NIR)-light responsive probes with lipid membranes: a molecular dynamics study.*
- 13:45 S7.OC2 – Clara Luque** (UCM, Madrid, ES)  
*Chromatin as an active poroelastic system.*

## SYMPOSIUM 8 – Biological Physics

Mitxelena 0  
Auditorium

Chairs: Beatriz Ibarra (UGR, Granada, ES) and Rui Travasso (CFis / UC, Coimbra, PT)

12:15	<b>S8.1 – Patricia Fáisca</b> (BioISI / UL, Lisbon, PT) <i>A molecular simulation approach towards establishing the early phase of beta2-microglobulin aggregation.</i>		
12:40	<b>S8.2 – Nunilo Cremades</b> (BIFI / UZ, Zaragoza, PT) <i>Molecular determinants for the disease-related liquid-to-solid transition of alpha-synuclein and Tau heterotypic coacervates.</i>		
13:05	<b>S8.3 – Raúl Pérez-Jiménez</b> (CIC nanoGUNE, Donostia-San Sebastián, ES) <i>Nanomechanics of microbial infections: from single-molecule to single-cell.</i>		
13:30	<b>S8.OC1 – Carlo Manzo</b> (UVic / UCC, Barcelona, ES) <i>An anomalous competition: assessment of methods for single-trajectory analysis through a community effort.</i>		
13:45	<b>S8.OC2 – Julene Madariaga</b> (Leipzig University, Leipzig, DE) <i>DNA nanorotors for ultrafast twist measurements.</i>		
14:00	<b>LUNCH</b>		
15:30	<b>POSTER SESSION</b>		
	<b>P1.</b> New and Notable Biophysics - High Impact work from Spain and Portugal	Chillida	1
	<b>P2.</b> Biophysics and Biomedicine (Biophysics and Health)	Room	
	<b>P3.</b> Protein Structure, Dynamics and Function		
	<b>P4.</b> Nucleic Acids and Supramolecular Complexes		
	<b>P5.</b> Cell and Tissue Biophysics		
	<b>P6.</b> Membrane Structure and Function	Axular	1
	<b>P7.</b> Systems Biophysics	Room	
	<b>P8.</b> Biological Physics		
	<b>P9.</b> Receptors, Channels, and Transporters		
	<b>PLENARY LECTURE 4</b>	Mitxelena	0
	Chair: Prof. José María Valpuesta (CNB-CSIC, Madrid, ES)	Auditorium	
16:30	<b>PL4 – Laura Itzhaki</b> (Dept. of Pharmacology / Cambridge University, Cambridge, GB) <i>Engineering the folding and function of tandem-repeat pUCCroteins: Teaching old proteins new tricks.</i> <u>Sponsored by “The Protein Society”</u>		
17:30	<b>FÉLIX M. GOÑI LECTURE</b> IBF (UPV/EHU, CSIC) - FBB, Leioa, ES <i>Retiring from a hobby: an impossible task.</i>	Mitxelena	0
		Auditorium	
18:00	<b>CLOSING</b>		

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