Thursday, August 22nd Morning *Session 1 - Super-resolution microscopy in Latin America*		
This opening session will delve into Fluorescence Super-resolution Microscopy in Bioimaging in the Latin American context, aiming to enlighten the community on the state of the art in this field within the region. It is designed to display the foundational work in super-resolution microscopy spanning research, education, and bridging the technological and educational gap among imaging scientists. Discussions will transition from introductory concepts to the advancements and potential of fluorescence nanoscopy in bioimaging within Latin America. Moreover, the session will feature the recent educational endeavors at promoting knowledge exchange, skill development, and fostering collaborations in Latin America, thereby significantly propelling super-resolution microscopy advancement in the region.		
9:00 - 9:10	**Welcome and Announcements** *Kildare Miranda, Mariano Buffone, Adán Guerrero*	10 min
9:10 - 9:20	**Expanding Global Access to Biomaging in LatAm - The Fluorescence Nanoscopy in Bioimaging Foundational Project** *Mariano Buffone, IBYME, Argentina*	10 min
9:20 - 09:35	**10 Years of History in Super Resolution Microscopy** *Adán Guerrero, UNAM, Mexico*	15 min
09:35 - 09:40	**Q&A**	5 min
9:40 - 10:10	**Plenary Talk 1. Evaluating Actin Organization with STED Nanoscopy in SMN-Deficient Neurons: Implications for Spinal Muscle Atrophy (SMA) Pathogenesis** *Alfredo Cáceres, CIMETSA-IUCBC, Argentina*	30 min
10:10 - 10:20	**Q&A**	10 min
10:20 - 10:35	**Spotlight**	15 min
10:35 - 10:50	**Educational Endeavors Fostering Super Resolution Microscopy in LatAm.** *Leonel Malacrida, Institut Pasteur, Uruguay*	15 min
10:50 - 10:55	**Q&A**	5 min
10:55 - 11:00	**Industrial Talk.** ThermoFisher	5 min
11:00 - 11:15	**Group Photo**	15 min
11:15 - 11:45	**Morning Break**	30 min
11:45 - 12:15	**Plenary Talk 2. Mapping the Nicotinic Acetylcholine Receptor Nanocluster Topography** *Francisco Barrantes, BIOMed UCA-CONICET, Argentina*	30 min

12:15 - 12:25	**Q&A**	10 min
12:25 - 12:55	**Superres Winners Talks (Mexico)** *3 speakers 10 min each*	
	Super Resolution in Food-Based Biomaterials: from Household Waste to Agroindustry Wastes *Josué Hernández, IPN, Mexico*	10 min
	Monitoring the Reactive Sites for Photocatalysis on Anatase TiO2 Surface through Super Resolution Advanced Microscopic Techniques *Susana Gallegos, IPN, Mexico*	10 min
	Transitioning from Low- and High-Resolution to Super Resolution in the Visualization of Microtubules *Valeria Piazza, CIO, Mexico*	10 min
12:55 - 13:05	**Q&A**	10 min
13:05 - 14:30	**Lunch Break and Meeting with the Instructors**	85 min

Moderator: Valeria Piazza

Thursday, August 22nd Evening ***Session 2 - Single molecule localization microscopy***		
Highlighting the transformational impact of Single Molecule Localization Microscopy (SMLM) on unraveling biological intricacies, this session offers a foray into the molecular realm. It navigates the imaging evolution from observing isolated blinking or wandering fluorescent molecules to exploring tissues and organismal levels. The session elucidates SMLM's potential as a springboard for innovative diagnostic tools, forming a nexus between foundational research and clinical application. Prominent methodologies like STORM, PAINT, and SPT, devised to decode cell biology intricacies, will be accentuated, underlining their pivotal role in advancing molecular imaging. A focal point will be the evolutionary trajectory and prospective horizons of SMLM, particularly in spatial transcriptomics and whole brain imaging. Additionally, the session explores the promise of SMLM as a clinical diagnostic tool, foreshadowing a future where molecular details significantly bolster disease diagnosis and comprehension.		
14:30 - 15:00	**Plenary Talk 3. Super Resolution Microscopy for Dynamic Structural Cell Biology** *Jonas Ries, Vienna, ETH, Zurich (virtual)*	30 min
15:00 - 15:10	**Q&A**	10 min
15:10 - 15:30	**The Helical Structure of Polymerized Actin in the Mouse Sperm Flagellum Undergoes a Structural Change to Cease Motility at the Time of Sperm-Egg Fusion** *Martina Jabloñski, IBYME, Argentina*	20 min
15:30 - 15:40	**Q&A**	10 min

15:40 - 16:10	**Plenary Talk 4. Dissecting the Mammalian Sperm Capacitation Process with 3D Superresolution Microscopy** *Diego Krapf. Colorado State University, USA*	30 min
16:10 -16:20	**Q&A**	10 min
16:20 - 16:50	**Afternoon Break**	30 min
16:50 - 16:55	**Industrial Talk.** *TissueDiagnostics*	5 min
16:55 - 17:15	**Imaging Retinas: From Organoids to Individual Photoreceptors** *Pablo Loza, ICFO, Spain*	20 min
17:15 - 17:25	**Q&A**	10 min
17:25 - 17:55	**Selected Students Talks** *3 speakers 10 min each*	
	Subcellular Localization of PKA During Sperm Capacitation by Super Resolution Microscopy *Analia Novero, IBR, Argentina*	10 min
	Reorganization of the Mouse Sperm Flagellum Membrane During Acrosomal Exocytosis *Diana Vázquez, UNAM, Mexico*	10 min
	SUPPOSe: A Super-Deconvolution Tool for Microscopy Images *Micaela Toscani, IIBM, Argentina*	10 min
17:55 - 18:05	**Q&A**	10 min
18:05 - 19:30	**Posters (1-30) & Sponsors Session**	85 min
Moderator: Adán Guerrero		

Friday, August 23rd Morning
Session 3 - Boosting Optical Fluorescence Microscopy with Structured Light

The session explores contemporary advancements in structured light microscopy, instrumental for significant scientific discoveries. Initially, confocal microscopy was crucial for enhancing contrast through structured illumination. The focus now transitions towards overcoming the diffraction barrier by channeling more information within the imaging system, refining spatial sampling of signals, or segregating information from its source. The session highlights the principles and potentials of various innovative techniques, demonstrating their invaluable utility for biological discovery, notably in elevating resolution in confocal microscopy and leading the charge in super-resolution multidimensional imaging. Methodologies that are redefining benchmarks in super-resolution microscopy will be unfolded. Attendees will gain insights into their application for probing the nano intricacies of life.

09:00 - 09:30	**Plenary Talk 5. Fluorescence Nanoscopy and Tracking with True Nanometric Resolution: STED-FRET, MINFLUX and Other Ways**	30 min

	Fernando Stefani, CIBION, Argentina	
09:30 - 09:40	**Q&A**	10 min
09:40 - 10:00	**Selected Students Talks** *2 speakers 10 min each*	
	hiPSC-Derived Motor Neuron Axons Show Gaps in the Periodical Spectrin Lattice *Nicolas Unsain, INIMEC-CONICET, Argentina*	10 min
	Super Resolution Microscopy-based Chromatin Dynamics and Transcriptional Regulation at the Proopiomelanocortin Locus in the Pituitary and Hypothalamus of Normal and Mutant Mice *Verónica Pignataro, INGEBI, Argentina*	10 min
10:00 - 10:10	**Q&A**	10 min
10:10 - 10:15	**Industrial Talk.** Zeiss	5 min
10:15 - 10:35	**Solutions in Cancer Research Through Structured Illumination Microscopy** *Alejandro López, ADMIRA-INCAN, Mexico*	20 min
10:35 - 10:45	**Q&A**	10 min
10:45 - 11:15	**Morning Break**	30 min
11:15 - 11:35	**Combining Structured-Illumination and Spectral Unmixing for Ultra-High Plex and Resolution in Imaging-based Spatial Transcriptomics** *Álvaro Crevenna. EMBL, Italy*	20 min
11:35 - 11:45	**Q&A**	10 min
11:45 - 12:40	**Posters (31-50) & Sponsors Session**	55 min
12:40 - 14:00	**Lunch Break and Meeting with the Instructors**	80 min
Moderator: Federico Lecumberry		

Friday, August 23rd Evening
Session 4 - Expanding worldwide access to Super Resolution Microscopy

This session will emphasize widening global access to nanoscale imaging, particularly in resource-limited areas, by utilizing accessible technology like conventional fluorescence microscopes and chemical reagents. It will explore harnessing brightness fluctuations of fluorescent molecules or isotropically expanding samples to generate sharper super-resolved images. The introduction of FAIR imaging protocols and image enhancement tools will be highlighted. These advances aim to unlock high-fidelity multidimensional super-resolution microscopy without hefty costs, benefiting the research community. The session will also venture into integrating machine learning with super-resolution microscopy and merging

it with electron microscopy for enhanced imaging, opening avenues for deeper understanding of biological systems at the nanoscale.

14:00 - 14:30	**Plenary Talk 6. Pioneering Open-Source AI Technologies for Biological Discovery through Microscopy** *Ricardo Henriques, IGC, Portugal (virtual)*	30 min
14:30 - 14:40	**Q&A**	10 min
14:40 - 15:00	**Unfolding Space and Time with Single Frame Super-Resolution Microscopy** *Adán Guerrero, UNAM, Mexico*	20 min
15:00 - 15:10	**Q&A**	10 min
15:10 - 15:30	**Selected Students Talks** *2 speakers 10 min each*	
	Extension of Resolution in Flow Cytometry Images for Nanometric Study in Cellular Populations. *Victor Abonza, UNAM, Mexico*	10 min
	Super-Resolution Imaging of the ER in Neurospora Crassa *Juan Martinez, CICESE, Mexico*	10 min
15:30 - 15:40	**Q&A**	10 min
15:40 - 16:00	**Imaging for All (i4A)** *Deniz Saltukoglu, Global Bioimaging, Germany*	20 min
16:00 - 16:10	**Q&A**	10 min
16:10 - 16:40	**Afternoon Break**	30 min
16:40 - 16:55	*Federico Lecumberry, UDELAR, Uruguay*	15 min
16:55 - 17:10	**napari-superres: A Suite of Computational Methods for Super-Resolution Microscopy Based on Fluorescence Fluctuations** *Rocco D'Antuono, Francis Crick Institute, United Kingdom*	15 min
17:10 - 17:20	**Q&A**	10 min
17:20 - 17:50	**Plenary Talk 7. Democracy in Microscopy: from the Brain to the Molecule with an Affordable Fluorescence Microscope** *Ali Shaib, Universitätsmedizin Göttingen, Germany*	30 min
17:50 - 18:00	**Q&A**	10 min
18:00 - 18:15	**Closing Ceremony & Final Remarks**	15 min

Moderator: Mariano Buffone