

IFM 2021

2nd International Forum on Microscopy

November 14-15, 2021, China

Schedule at a Glance

November 14, 2021			November 15, 2021	
08:30-17:10	8:30-8:50	Opening Ceremony	8:00-9:55	Session 1-5
	8:50-10:10	Plenary Session I	9:55-10:00	Coffee Break
			10:00-12:05	Session 6-10
	10:10-10:30	Coffee Break	12:05-14:00	Lunch
	10:30-11:50	Plenary Session II	14:00-15:00	Board Meeting of Microscopy Branch, CIS (Room 5) Language: Chinese 中文 (仅显微仪器分会理事参会)
	11:50-13:30	Lunch		
	13:30-14:50	Plenary Session III	15:00-17:00	Round-table Meeting(圆桌论坛) (Room 5) Language: Chinese 中文 (全体参会)
	14:50-15:10	Coffee Break	17:00	Closing of IFM 2021
15:10-17:10	Plenary Session IV			

40 mins / plenary speech; 20 mins / keynote; 15 mins / invited talk; Language: English.

Program on November 14, 2021

Conference number: 827 2059 4970, Password: 840685

<https://zoom.us/j/82720594970?pwd=aUxKcHhiQUVlOWYzSWtGK3J5QXhOZz09>

Time	Opening Ceremony and Plenary Session	Chair
8:30-8:50	Opening Ceremony	Jiubin Tan
8:50-9:30	Title: The Application of Mueller Matrix Spectroscopic Ellipsometry Based Scatterometry and CD- Small Angle X-ray Scattering to Determination of the Feature Shape and Dimensions of Integrated Circuit Structures Prof. Alain C. Diebold, SUNY Polytechnic Institute, USA	
9:30-10:10	Title: Imaging Atomically Precise Chemical, Physical, Electronic, and Spin Interfaces Prof. Paul S. Weiss, University of California, Los Angeles (USA)	
10:10-10:30	Coffee Break	
10:30-11:10	Title: Multimodal, Multidimensional and Multiplex Intravital Imaging Prof. Scott E. Fraser, University of Southern California, Los Angeles (USA)	
11:10-11:50	Title: Improving Pathology and Life Science Research by Leveraging Computational Microcopy and Machine Learning Prof. Changhui Yang, California Institute of Technology (USA)	
11:50-13:30	Lunch	
13:30-14:10	Title: Superresolution: Breaking the Bounds of Imaging in Microscopy Prof. Zeev Zalevsky, Bar-Ilan University (Israel)	
14:10-14:50	Title: Imaging and Manipulating of a Single Atom/Molecule on Solid Surfaces with SPM Prof. Hong-Jun Gao, Chinese Academy of Sciences (China)	
14:50-15:10	Coffee Break	
15:10-15:50	Title: Structural Biology in situ: the Promise and Challenges of Cryoelectron Tomography Prof. Wolfgang Baumeister, Max Planck Institute of Biochemistry (Germany)	
15:50-16:30	Title: Optical Microsphere Nanoscope: Progress and Outlook Prof. Minghui Hong, National University of Singapore (Singapore)	
16:30-17:10	Title: Upconversion Nanophotonic Systems for Super-Resolution Imaging, Single Molecular Tracking, and High-Throughput Digital Assays Prof. Dayong Jin, University of Technology Sydney (Australia)	

Program on November 15, 2021

Oral Presentations				
Time	Report ID	Speaker	Author affiliation	Title
<p>Session 1. Spectral Microscopy [Room 1] Conference number: 815 8853 4390, Password: 835677 https://zoom.us/j/81588534390?pwd=Zk8rbTJndVFrbEN4NDBrSk9EYVl1QT09 (Chairs: Prof. Bei Li and Prof. Jingtao Fan)</p>				
8:00-8:20	S1-1 (Keynote)	Wolfgang Langbein	School of Physics and Astronomy, Cardiff University, U.K.	Quantitative hyperspectral coherent Raman scattering microscopy for label-free bioimaging
8:20-8:40	S1-2 (Keynote)	Wei Huang	Department of Engineering Science, University of Oxford, U.K.	Application of single cell Raman biotechnology to microbiology
8:40-9:00	S1-3 (Keynote)	Katsumasa Fujita	Department of Applied Physics, Osaka University, Japan	Intracellular chemical imaging by surface enhanced Raman scattering (SERS) microscopy
9:00-9:15	S1-4 (Invited)	Bei Li	Changchun Institute of Optics, Fine Mechanics, Chinese Academy of Sciences, China	Application of single cell Raman biotechnology to life science
9:15-9:30	S1-5 (Invited)	Huaidong Yang	State Key Laboratory of Precision Measurement Technology and Instruments, Tsinghua University, China	Hyperspectral structured illumination microscopy
9:30-9:45	S1-6 (Invited)	Yin Song	School of Optics and Photonics, Beijing Institute of Technology, China	Probing charge separation in the photosynthetic reaction centers using multispectral multidimensional spectroscopy

Session 2. Computational Microscopy [Room 2]

Conference number: 858 9375 6095, Password: 157766

<https://zoom.us/j/85893756095?pwd=ZXJEL3N2QVBRWmNTMWtlMkxEaTIKQT09>

(Chairs: Prof. Liangcai Cao and Prof. Dong Li)

Time	Report ID	Speaker	Author affiliation	Title
8:00-8:20	S2-1 (Keynote)	Liangcai Cao	State Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instruments, Tsinghua University, China	Iterative reconstruction method of diffraction limited digital holographic microscopy
8:20-8:40	S2-2 (Keynote)	Dong Li	¹ Institute of Biophysics, Chinese Academy of Sciences, China ² College of Life Sciences, University of Chinese Academy of Sciences, China	Multi-SIM via deep learning algorithm for super-resolution live imaging
8:40-8:55	S2-3 (Invited)	Guoan Zheng	Department of Biomedical Engineering, University of Connecticut, Storrs, USA	Ptychographic structured modulation for super-resolution imaging
8:55-9:10	S2-4 (Invited)	Chao Zuo	Smart Computational Imaging Laboratory, Nanjing University of Science and Technology, China	Transport-of-intensity quantitative phase imaging (TIQPI) and transport-of-intensity diffraction tomography (TIDT)
9:10-9:25	S2-5 (Invited)	Peng Fei	School of Optical and Electronic Information-Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, China	Deep learning-enhanced light-field microscopy for capturing instantaneous biological dynamics at high spatiotemporal resolution
9:25-9:40	S2-6 (Invited)	Honglin Liu	Key Laboratory for Quantum Optics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China	Imaging and localization through scattering layers based on speckles
9:40-9:55	S2-7 (Invited)	Chen Bai	Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China	Quantitative phase retrieval through scattering media

Session 3. Microscopy for measurement I [Room 3]

Conference number: 896 8998 0064, Password: 591520

<https://zoom.us/j/89689980064?pwd=YVVobTVKTFWFrSTd1Y3BKbVVLeHBpdz09>**(Chairs: Prof. Weihu Zhou and Prof. Shiyuan Liu)**

Time	Report ID	Speaker	Author affiliation	Title
8:00-8:20	S3-1 (Keynote)	Richard Leach	Faculty of Engineering, University of Nottingham, U.K.	Uncertainty evaluation for optical metrology using virtual instruments
8:20-8:40	S3-2 (Keynote)	Ling Hao	Department of Quantum Technologies, National Physical Laboratory, U.K.	Mapping the conductivity using non-contact microwave dielectric resonator
8:40-9:00	S3-3 (Keynote)	M. Selim Ünlü	Department of Electrical and Computer Engineering, Boston University, USA	Interferometric reflectance microscopy for physical and chemical characterization of biological nanoparticles
9:00-9:15	S3-4 (Invited)	Dingrong Yi	College of Mechanical Engineering and Automation, Huaqiao University, China	Laser microdissection of biomaterials under the guidance of optical imaging
9:15-9:30	S3-5 (Invited)	Rong Su	Precision Optical Manufacturing and Testing Centre, Shanghai Institute of Optics and Fine Mechanics, China	Unified theoretical framework for 3D image formation in interference microscopy
9:30-9:45	S3-6 (Invited)	Chenguang Liu	School of Instrumentation Science and Engineering, Harbin Institute of Technology, China	Complex surface topography measurement and subsurface defects detection based on novel confocal microscopy

Session 4. Radiology and Acousto-optic Microscopy [Room 4]

Conference number: 820 1869 6536, Password: 855309

<https://zoom.us/j/82018696536?pwd=UXJNZkZZT3Y4bFRlNmJZTkyRDI3UT09>

(Chairs: Prof. Weibao Qiu and Prof. Lei Xi)

Time	Report ID	Speaker	Author affiliation	Title
8:00-8:20	S4-1 (Keynote)	Sava Sakadzic	Athinoula A Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital and Harvard Medical School, USA	Microvascular oxygen delivery in the cortical territories supplied by the distal arteriolar branches
8:20-8:40	S4-2 (Keynote)	Junjie Yao	Department of Biomedical Engineering, Duke University, USA	Ultra-fast super-wide-field photoacoustic microscopy of functional brain activities
8:40-8:55	S4-3 (Invited)	Lidai Wang	Department of Biomedical Engineering, City University of Hong Kong, China	Multi-contrast photoacoustic microscopy
8:55-9:10	S4-4 (Invited)	Lei Xi	Department of Biomedical Engineering, Southern University of Science and Technology, China	Multiscale photoacoustic microscopy
9:10-9:25	S4-5 (Invited)	Weibao Qiu	Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China	Novel transducer and device for high resolution ultrasound imaging
9:25-9:40	S4-6 (Invited)	Lei Li	Andrew and Peggy Cherng Department of Medical Engineering, California Institute of Technology, USA	Multiconstrast photoacoustic tomography of wholebody dynamics and whole brain functions
9:40-9:55	S4-7 (Invited)	Jianbo Tang	College of Engineering, Southern University of Science and Technology, China	Optical coherence tomography for cerebral microvasculature imaging

Session 5. Fluorescence Microscopy and Biomedical Imaging [Room 5]

Conference number: 863 7622 7021, Password: 078502

<https://zoom.us/j/86376227021?pwd=a01jNXFDc0dKYUZLMkRLYUFjOWZndz09>**(Chairs: Prof. Yujie Sun and Prof. Daxiang Cui)**

Time	Report ID	Speaker	Author affiliation	Title
8:00-8:20	S5-1 (Keynote)	Huabing Yin	James Watt School of Engineering, University of Glasgow, U.K.	Single-cell microfluidics for rapid diagnosis and cell sorting
8:20-8:35	S5-2 (Invited)	Chao He	Department of Engineering Science, University of Oxford, U.K.	Vectorial adaptive optics – correction of both polarisation and phase
8:35-8:55	S5-3 (Keynote)	Daxiang Cui	School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, China	Intelligent nano probes for targeted imaging and therapy of lung Cancer
8:55-9:15	S5-4 (Keynote)	Kevin W. Eliceiri	Departments of Medical Physics and Biomedical Engineering, University of Wisconsin-Madison, Madison	Computational optics of the tumor microenvironment
9:15-9:30	S5-5 (Invited)	Lingjie Kong	Department of Precision Instruments, Tsinghua University, China	Speed up volumetric recording of neural activity via computational imaging
9:30-9:45	S5-6 (Invited)	Jiaye He	¹ National Innovation Center for Advanced Medical Devices, China ² Morgridge Institute for Research, Madison, USA	Tailored light sheet fluorescence imaging and data processing to study embryonic development

Session 6. Advanced Optical Microscopy [Room 1]

Conference number: 815 8853 4390, Password: 835677

<https://zoom.us/j/81588534390?pwd=Zk8rbTJndVFrbEN4NDBrSk9EYVl1QT09>

(Chairs: Prof. Bingfeng Ju and Prof. Ke Si)

Time	Report ID	Speaker	Author affiliation	Title
10:00-10:20	S6-1 (Keynote)	Jan Huisken	Morgridge Institute for Research, USA	Multiscale light sheet microscopy inside and outside the optics lab
10:20-10:40	S6-2 (Keynote)	Liang-Chia Chen	Department of Mechanical Engineering, Taiwan University, China	Precise single-exposure microscopic surface profilometry using artificial neural network
10:40-11:00	S6-3 (Keynote)	Ke Si	School of Brain Science and Brain Medicine, Zhejiang University, China State Key Laboratory of Modern Optical Instrumentation, College of Optical Science and Engineering, Zhejiang University, China	Deep tissue imaging from sample preparation to optical system design
11:00-11:15	S6-4 (Invited)	Jianing Chen	Institute of Physics, Chinese Academy of Science, China	Observation and ultrafast dynamics of inter-sub-band transition in InAs twinning superlattice nanowires
11:15-11:30	S6-5 (Invited)	Jiamin Wu	Department of Automation, Tsinghua University, China	Scanning light-field microscopy with digital adaptive optics
11:30-11.45	S6-6 (Invited)	Biqin Dong	Academy for Engineering and Technology, Fudan University, Shanghai 200433, China	Spectroscopic Super-Resolution Microscopy via Single-Molecule Localization

Session 7. Super-Resolution Imaging [Room 2]

Conference number: 858 9375 6095, Password: 157766

<https://zoom.us/j/85893756095?pwd=ZXJEL3N2QVBRWmNTMWtlMkxEaTlKQT09>

(Chairs: Prof. Baoli Yao and Prof. Peng Xi)

Time	Report ID	Speaker	Author affiliation	Title
10:00-10:20	S7-1 (Keynote)	Fu-Jen Kao	Institute of Biophotonics, Yang-Ming University, China	Polarization resolved and photon counting based stimulated emission pump-probe microscopy
10:20-10:40	S7-2 (Keynote)	Peng Xi	Department of Biomedical Engineering, College of Future Technology, Peking University, China	Super-resolution: an adventure on a new dimension
10:40-11:00	S7-3 (Keynote)	Cuifang Kuang	State Key Laboratory of Modern Optical Instruments, Zhejiang University, China	Super-resolution microscopy and instrument
11:00-11:20	S7-4 (Keynote)	Haoyu Li	Advanced Microscopy and Instrumentation Research Center, School of Instrumentation Science and Engineering, Harbin Institute of Technology, China	Improving live-cell super-resolution fluorescence microscopy with sparse deconvolution
11:20-11:35	S7-5 (Invited)	Yiming Li	Department of Biomedical Engineering, Southern University of Science and Technology, China	Maximum information extraction for super-resolution imaging using experimental PSF models
11:35-11:50	S7-6 (Invited)	Juntao Gao	Department of Automation, Tsinghua University, China Beijing National Research Center for Information Science and Technology, Tsinghua University, China Center for Synthetic & Systems Biology, Tsinghua University, China	Studying the structure and dynamics of nuclear pore complexes using super-resolution fluorescence polarization microscopy SDOM and its derivatives
11:50-12:05	S7-7 (Invited)	Karl Zhanghao	Department of Biomedical Engineering, Southern University of Science and Technology, China	Super-resolution fluorescence polarization microscopy and its biological applications

Session 8. Microscopy for measurement II [Room 3]

Conference number: 896 8998 0064, Password: 591520

<https://zoom.us/j/89689980064?pwd=YVVobTVKTWFrSTd1Y3BKbVVLLeHBpdz09>

(Chairs: Prof. Ying Xu and Prof. Jiwen Cui)

Time	Report ID	Speaker	Author affiliation	Title
10:00-10:20	S8-1 (Keynote)	Changcai Cui	National & Local Joint Engineering Research Center for Intelligent Manufacturing Technology of Brittle Material Products, Huaqiao University, China	The optical anisotropy of silicon carbide and the thickness of subsurface damage layer studied by Mueller matrix ellipsometry
10:20-10:35	S8-2 (Invited)	Zhengang Lu	School of Instrumentation Science and Engineering, Harbin Institute of Technology, China	Electromagnetic shielding for high performance optical windows using micro-nano structures and thin films
10:35-10:50	S8-3 (Invited)	Chunguang Hu	State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, China	Optical tweezers induced microdroplet fabrication in organic-inorganic compound solution
10:50-11:05	S8-4 (Invited)	Huanfei Wen	North University of China, China	Dynamic behavior of O ₂ and H on TiO ₂ (110) surface at 78K
11:05-11:20	S8-5 (Invited)	Weibo Wang	School of Instrumentation Science and Engineering, Harbin Institute of Technology, China	eMDD-Net: Effective micro-defect detection using adaptively-weighted feature pyramid network with guided anchoring
11:20-11:35	S8-6 (Invited)	Rui Shi	Wyrowski Photonics UG, Germany Shanghai InfoCrops Science & Technology Co., Ltd, China	Numerical analysis of tight focusing by a real lens system

Session 9. Scanning Probe Microscopy [Room 4]

Conference number: 820 1869 6536, Password: 855309

<https://zoom.us/j/82018696536?pwd=UXJNZkZZT3Y4bFRlNmJZTkyRDI3UT09>**(Chairs: Prof. Chanmin Su and Prof. Ying Jiang)**

Time	Report ID	Speaker	Author affiliation	Title
10:00-10:20	S9-1 (Keynote)	Chanmin Su	Institute of Automation, Chinese Academy of Science, Shenyang, China	How sample preparation enabled microscopy technologies
10:20-10:40	S9-2 (Keynote)	Ying Jiang	School of Physics, Peking University, China	Structure and dynamics of water at surface probed by scanning probe microscopy
10:40-10:55	S9-3 (Invited)	Zhihai Cheng	Department of Physics, Renmin University of China, China	Interfacial structural and property of 2D atomic crystals investigated by advanced atomic force microscopy
10:55-11:10	S9-4 (Invited)	Qi Chen	i-Lab, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, China	Energy band alignment in thin-film optoelectronic devices
11:10-11:25	S9-5 (Invited)	Massimiliano Galluzzi	Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China	Atomic force microscopy and deep neural networks joining forces to investigate phenotype of living macrophages
11:25-11:40	S9-6 (Invited)	Pengfei Wang	CAS Key Laboratory of Microscale Magnetic Resonance and Department of Modern Physics, University of Science and Technology of China, China	Magnetic spin imaging based on scanning NV center probe microscopy
11:40-11:55	S9-7 (Invited)	Rui-Song Ma	Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Sciences, China	A time-shared switching scheme designed for multi-probe scanning tunneling microscope

Session 10. Cryo-EM and EM [Room 5]

Conference number: 863 7622 7021, Password: 078502

<https://zoom.us/j/86376227021?pwd=a01jNXFDc0dKYUZLMkRLYUFjOWZndz09>

(Chairs: Prof. Ning Gao and Prof. Qingtao Shen)

Time	Report ID	Speaker	Author affiliation	Title
10:00-10:20	S10-1 (Keynote)	Ning Gao	School of Life Sciences, Peking University, China	Structural aspects of ribosome biogenesis and translation regulation
10:20-10:40	S10-2 (Keynote)	Jinfeng Yang	Sanken, Osaka University, Japan	Ultrafast electron diffraction and imaging with relativistic femtosecond electron pulses
10:40-10:55	S10-3 (Invited)	Qingtao Shen	School of Life Science and Technology, ShanghaiTech University, China	Annealing synchronizes the 70S ribosome into a minimum-energy conformation
10:55-11:10	S10-4 (Invited)	Kaiming Zhang	Hefei National Laboratory for Physical Sciences at the Microscale and School of Life Sciences, University of Science and Technology of China, China	Determination of RNA-only 3D structures by Cryo-EM
11:10-11:25	S10-5 (Invited)	Wei He	Focus e-Beam Technology (Beijing)	Introduction to high-throughput SEM and its applications
11:25-11:40	S10-6 (Invited)	Mingxu Hu	Beijing Advanced Innovation Center for Structural Biology, Tsinghua University, China	Statistics of spatial rotations and projection directions considering molecular symmetry in 3D electron cryo-microscopy

Round-table Meeting
Chair: Prof. Jiubin Tan

Conference number: 863 7622 7021, Password: 078502

<https://zoom.us/j/86376227021?pwd=a01jNXFDc0dKYUZLMkRLYUFjOWZndz09>

Time	Room	Topics	participants	Language
14:00-15:00	Room 5	Board Meeting of Microscopy Branch, CIS 中国仪器仪表协会显微仪器分会理事会年会	Board Member of Microscopy Branch, CIS 显微仪器分会理事	Chinese 中文
15:00-17:00	Room 5	Exchange Views on General Development Tendency, Major Issues, Recent Processes and Appropriate Industrial Strategy of Microscopy Field	All participants 全体参会人员	Chinese 中文