

Near-field Optical Nanoscopy Summer School San Sebastian, June 6 – 9, 2023



Program

meet the leading experts in near-field optics





Near-field Optical Nanoscopy Summer School

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Program

Tuesday | June 6th, 2023

09:00 – 09:30	Registration & coffee
09:30 – 10:00	Rainer Hillenbrand – CIC nanoGUNE BRTA, San Sebastián, Spain Monika Goikoetxea – CIC nanoGUNE BRTA, San Sebastián, Spain Dorota Pawlak – Ensemble3, Warsaw, Poland <i>Opening Remarks</i>
10:00 – 11:00	Lukas Eng – IAP, TU Dresden, Germany <i>Introduction to Atomic Force Microscopy (AFM)</i>
11:00 – 11:30	Coffee Break
11:30 – 13:00	Fritz Keilmann – LMU, Munich, Germany Rainer Hillenbrand – CIC nanoGUNE BRTA, San Sebastián, Spain <i>Introduction to scattering-type Scanning Near-Field Optical Microscopy (s-SNOM)</i>
13:00 – 14:30	Cocktail lunch at Palacio Miramar
14:30 – 15:30	Martin Schnell – CIC nanoGUNE BRTA, San Sebastián, Spain <i>Pseudo-heterodyne (PsHet) interferometric detection in s-SNOM</i>
15:30 – 16:30	Rainer Hillenbrand – CIC nanoGUNE BRTA, San Sebastián, Spain <i>Near-Field Probing Phenomena – Part I</i>
16:30 – 17:00	Coffee break
17:00 – 17:30	Lars Mester – neaspec, attocube systems AG, Haar, Germany <i>AFM and s-SNOM Data Processing using Gwyddion</i>

Evening Program

19:15	Dinner at a traditional Basque Cider house Meeting point: Aparcamiento En Bus, Andrestegi kalea, 20018, Donostia-San Sebastian https://goo.gl/maps/tqfWh6cdEeS1gpey7
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Wednesday | June 7th, 2023

08:30 – 09:00	Coffee
09:00 – 10:30	Raul Freitas – Brazilian Synchrotron Light Laboratory, Campinas, Brazil <i>nano-FTIR Spectroscopy</i>
10:30– 11:00	Tobias Gokus – neaspec, attocube systems AG, Haar, Germany <i>nano-FTIR Data Processing</i>
11:00 – 11:30	Coffee Break
11:30– 12:00	Alexander Govyadinov – neaspec, attocube systems AG, Germany <i>Modeling of Near-field Optical Contrast and Spectra</i>
12:00– 13:00	Lars Mester – neaspec, attocube systems AG, Haar, Germany <i>Material Contrasts in s-SNOM and nano-FTIR – Part I</i>
13.00 – 15:00	Lunch & Coffee at Palacio Miramar
15:00 – 16:00	Thomas Taubner – RWTH Aachen, Germany <i>Material Contrasts in s-SNOM and nano-FTIR – Part II</i>
16:00 – 17:00	Iris Niehues, Rainer Hillenbrand – CIC nanoGUNE BRTA, San Sebastián, Spain Lars Mester – neaspec, attocube systems AG, Haar, Germany <i>Near-Field Probing Phenomena – Part II</i>
17:00 – 19:30	Poster Session I - with Beer & Wine & Cider + Pintxos



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Thursday | June 8th, 2023

08:30 – 09:00	Coffee
09:00 – 10:00	Lukas Eng – IAP, TU Dresden, Germany <i>Advanced AFM Modes</i>
10:00 – 11:00	Antonio Ambrosio – Center for Nano Science and Technology of IIT, Milan, Italy <i>Photoinduced Forces and Photothermal Expansion – Part I</i>
11:00 – 11:30	Coffee Break
11:30 – 12:15	Claas Reckmeier – neaspec, attocube systems AG, Haar, Germany <i>Photoinduced Forces and Photothermal Expansion – Part II</i>
12:15 – 15:00	free time to discover the city
15:00 – 16:00	Adrian Cernescu – neaspec, attocube systems AG, Haar, Germany <i>Practical Aspects using neaSCOPE Instruments</i>
16:00 – 16:15	Yasin Durmaz – neaspec, attocube systems AG, Haar, Germany <i>PsHet interferometric Point Spectroscopy with s-SNOM</i>
16:15 – 16:30	Rainer Hillenbrand – CIC nanoGUNE BRTA, San Sebastián, Spain <i>Closing Remarks</i>
16:30 – 18:30	Poster Session II - with <i>Coffee and sweets</i>



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Friday | June 9th, 2023

Focus Sessions

08:30 – 09:00	Coffee
09:00 – 10:00	Pablo Alonso-González – University of Oviedo, Spain <i>Plasmon and Phonon Polariton mapping in 2D Materials</i>
10:00 – 10:45	Frank Koppens – ICFO, Castelldefels, Spain <i>Near-field Photocurrent mapping</i>
10:45 – 11:15	Coffee break
11:15 – 12:15	Dmitri Basov – Columbia University, New York, USA <i>Ultrafast Pump-Probe Nanoscopy</i>
12:15 – 13:00	Vladimir Zenin – University of Southern Denmark, Odense, Denmark <i>Near-field Imaging of Plasmonic and Dielectric Antennas and Waveguides</i>
13:00 – 14:30	End



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Summer School Venue:

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POSTER LIST

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Poster session I | June 7th, 2023, 17:00 – 19:30

<i>Name</i>	<i>Poster Title</i>	<i>Poster number</i>
Adela Jenistova	Infrared nanospectroscopy of the purple membrane	9
Alexander Veber	Nano-FTIR spectroscopy end-station at the IRIS beamline at BESSY II	1
Anna Roche	Visible s-SNOM Imaging of Excitons in Transition Metal Dichalcogenides	11
Ashley Glover	Using broadband light to explore optical phonons of materials in the far-infrared	12
Atul Pandey	Opto-electrical magnetic domain imaging in non-collinear antiferromagnets	16
Charles Rambo	Characterizing Silicon Photonic Crystal Structures with s-SNOM	18
Chris Körner	Near Field Brillouin Light Scattering	8
Daniel Datz	Generalized Mie-scattering for describing scattering type scanning near-field optical measurements	21
Davide Spirito	Characterization of highly strained hBN microbubbles by nano-FTIR	13
Dinghe Dai	Quantitative Modeling of Scattering-type Scanning Near-field Optical Microscopy (s-SNOM) with the Finite Element Method Utilizing the Software JCMSuite	22
Edoardo Vicentini	Multi-wavelength pseudoheterodyne interferometry for near-field imaging	7
Edward Butler-Caddle	Integrating a THz generation and detection setup into a s-SNOM module	23
Enrico Bau	Increasing the Near-Field Depth Range for s-SNOM Subsurface Studies	6
Fabian Schulz	STM-based SNOM: Towards atomic-scale nearfield optical microscopy	5
Florina Marxer	High-sensitivity nano-FTIR spectroscopy of weakly absorbing materials	4
Igor Getmanov	Input impedance characterization of plasmonic antennas at mid infrared frequencies through scattering Scanning Near field Optical Microscopy.	19
Jiahao Ye	Unravelling the Triboelectrification Mechanisms in Metal-Organic Framework based Triboelectric Nanogenerators Using Nanoscale Imaging and Microscopy	14
Noam Veber	Near-field measurements of excited CsPbBr ₃ microcrystals and the possibilities of Nano photoluminescence measurements	15
Sergey Menabde	Monocrystalline gold flakes as perfect substrate for phonon-polaritons	20
Thorsten Götz	A simple but robust Si ₃ N ₄ -membrane based method to measure s-SNOM in liquid	2
Xi Lu	Shifting paradigm in probing soft matter in nanoscales.	10
Yahya Saboon	Characterisation of Cadmium arsenide nanowires via THz Spectroscopy and SNOM	17
Zara Taylor	s-SNOM in the visible spectrum	3



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Poster session II | June 8th, 2023, 16:30– 18:30

<i>Name</i>	<i>Poster Title</i>	<i>Poster number</i>
Aitana Tarazaga Martin-Luengo	Multiple and spectrally robust photonic magic angles in reconfigurable α -MoO ₃ trilayers	12
Anna Hatalak	Characterization of surface-grafted polymer brushes by Scanning Near-field Optical Microscopy: recent results and challenges	22
Chiara Schiattarella	Hyperspectral Near-field THz Nanoscopy of MBE-grown Topological Insulators	7
Gergely Németh	Concerning broadband near-field interferograms by means of Dispersive Fourier Transform Spectroscopy	21
Harishankar Balakrishnan	Optical Nanospectroscopy investigations on energy conversion materials	20
Hendrik Vondracek	PTE and s-SNOM – an Experimental Test on Real Life Biosamples	11
Ivan Kopal	IR-sSNOM study of modified PVDF membranes	1
Kajal Tiwari	Investigation of interfacial interaction driven electronic phenomena in 2D materials	4
Lin Nan	Unit cell dependent near-field property of BIC structures	8
Lina Jäckering	Identification of Stacking Orders in Trilayer Graphene below 80 nm hexagonal Boron Nitride	3
Lukas Hertling	The Deposition of Cobalt Phthalocyanine on Gold Substrates Studied by Conventional and Nano-FTIR Spectroscopy	6
Mamadou Faye	Optical resonances in quantum nanostructures	9
Marie Svecova	Nanostructure of wood cell walls	2
Pablo Díaz Núñez	neaSNOM in a glovebox: a perspective on implementation challenges	13
Patrik Micek	Comparison of polymer-based near-field probes	14
Patryk Kusch	Correlating amplitude and phase images taken by a near field optical microscopy with tip enhanced Raman and photoluminescence signals	15
Philipp Schwendke	Time-resolved SNOM with visible and near UV light	16
Philippe Roelli	On-demand mid-IR to visible upconversion with a near-field optical microscope	17
Saurabh Dixit	Interaction of vibrational mode of molecules with hyperbolic phonon polaritons in thin Van der Waals crystals	10
Tetiana Stepanenko	AFM-IR and s-SNOM measurements of the human erythrocyte membranes and the potential of nanoscale macromolecular orientation determination	5
Valentin ALLARD	Qualitative characterization of Au et Ag thin films by near-field optical microscopy	18
Yihang Fan	Reconstruction of the Near-field Electric Field by SNOM Measurement	19



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