Near-field Optical Nanoscopy Summer School

San Sebastian, June 6 – 9, 2023

Program

meet the leading experts in near-field optics

CIC nanoGUNE
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

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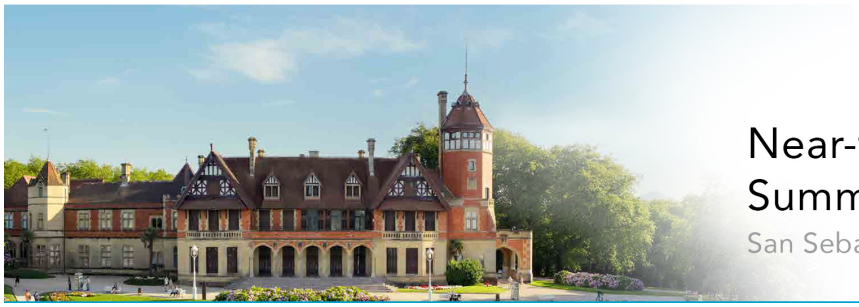


Program

Tuesday | June 6th, 2023

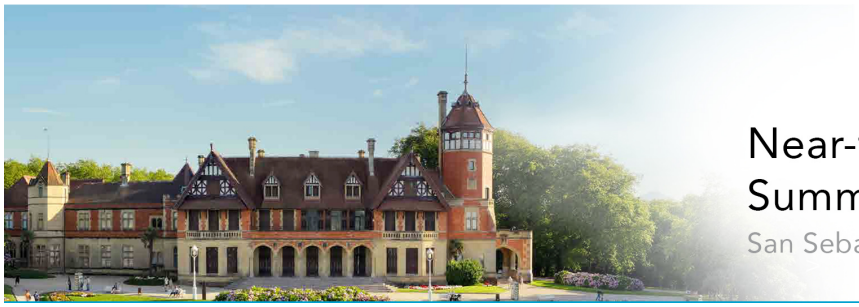
09:00 – 09:30	**Registration & coffee**
09:30 – 10:00	**Rainer Hillenbrand** – CIC nanoGUNE BRTA, San Sebastián, Spain **Monika Goikoetxea** – CIC nanoGUNE BRTA, San Sebastián, Spain **Dorota Pawlak** – Ensemble3, Warsaw, Poland *Opening Remarks*
10:00 – 11:00	**Lukas Eng** – IAP, TU Dresden, Germany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

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

Wednesday | June 7th, 2023

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

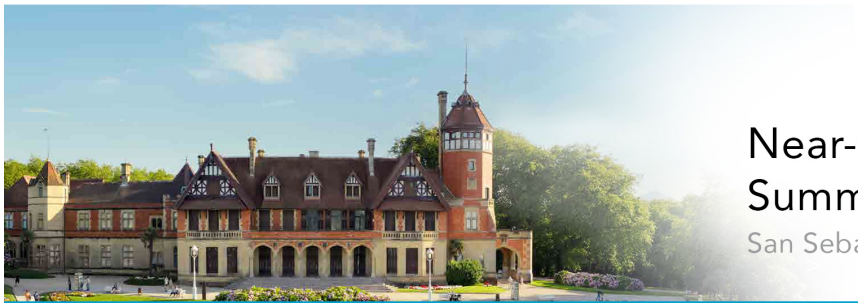


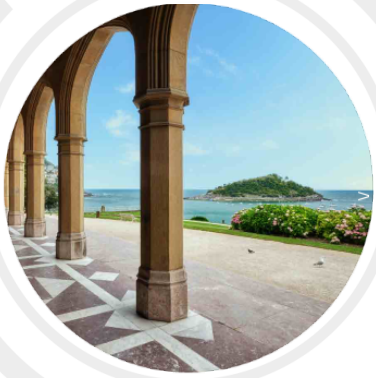
Thursday | June 8th, 2023

08:30 – 09:00	**Coffee**
09:00 – 10:00	**Lukas Eng** – IAP, TU Dresden, Germany *Advanced AFM Modes*
10:00 – 11:00	**Antonio Ambrosio** – Center for Nano Science and Technology of IIT, Milan, Italy *Photoinduced Forces and Photothermal Expansion – Part I*
11:00 – 11:30	**Coffee Break**
11:30 – 12:15	**Claas Reckmeier** – neaspec, attocube systems AG, Haar, Germany *Photoinduced Forces and Photothermal Expansion – Part II*
12:15 – 15:00	free time to discover the city
15:00 – 16:00	**Adrian Cernescu** – neaspec, attocube systems AG, Haar, Germany *Practical Aspects using neaSCOPE Instruments*
17:00 – 17:15	**Yasin Durmaz** – neaspec, attocube systems AG, Haar, Germany *PsHet interferometric Point Spectroscopy with s-SNOM*
17:15 – 17:30	**Rainer Hillenbrand** – CIC nanoGUNE BRTA, San Sebastián, Spain *Closing Remarks*
17:30 – 19:30	**Poster Session II -** *with Coffee and sweets*

Friday | June 9th, 2023
Focus Sessions

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





Summer School Venue:

Miramar Palace
Paseo de Miraconcha 48
20007 San Sebastián (Spain)

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POSTER LIST

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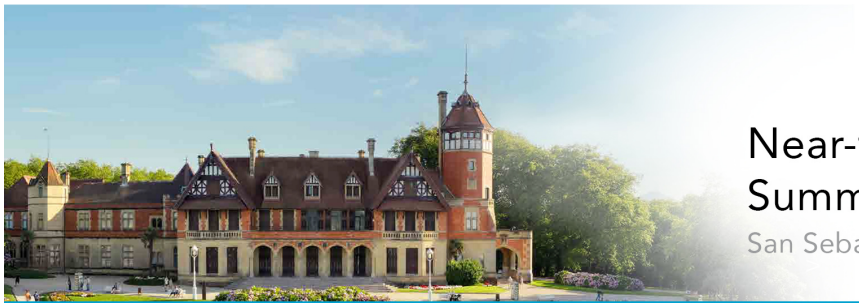
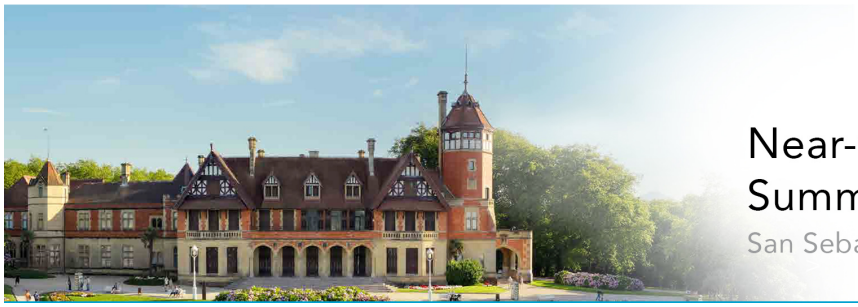


Poster session I | June 7th, 2023, 17:15 – 19:15

Name	*Poster Title*	*Poster number*
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
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 CsPbBr3 microcrystals and the possibilities of Nano photoluminescence measurements	15
Sergey Menabde	Monocrystalline gold flakes as perfect substrate for phonon-polaritons	20
Thorsten Gölz	A simple but robust Si3N4-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

Poster session II | June 8th, 2023, 16:00– 18:00

Name	*Poster Title*	*Poster number*
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
Edward Butler-Caddle	Integrating a THz generation and detection setup into a s-SNOM module	12
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 pahse 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 erythocyte 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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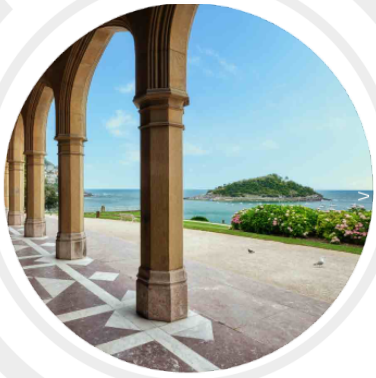

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