

'FIBsuperProbes' Workshop
25th-26st March 2025
Brussels



Introduction

'FIBsuperProbes' (www.fibsuperprobes.com) is a European Union-funded Horizon 2020 research project focused on developing nanometer-scale SQUID (Superconducting Quantum Interference Device) sensors on cantilever scanning probes. In order to accomplish this task, we have used focused-ion-beam (FIB) techniques, producing sensors with unprecedented size, functionality, and sensitivity, directly custom-designed cantilevers. Our newly developed scanning probes hold immense potential for scanning applications such as high-resolution imaging of stray magnetic fields in van-der-Waals 2D magnets.

This workshop will bring together leading researchers and collaborators across Europe, joined by industry representatives from fields essential to our project—such as e.g. quantum sensing companies, AFM cantilever production, thin film technologies, and other advanced fabrication methods.

Workshop

- The workshop will focus on state-of-the-art scanning SQUID microscopy, related techniques, and applications.
 - There will be 8 talks from the FIBsuperProbes nodes: 1 each from Tübingen, Zaragoza, and Basel; 1 from IBMZ, and 1 overview talk.
 - There will be 2 scientific talks from leaders in the field from outside FIBsuperProbes
 - There will be 4 or 5 talks from representatives of companies in the field
 - In general, each talk will be allocated 25 min plus 10 min for questions, but flexibility is possible if speakers have more or less content to present
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Schedule

25th March 2025

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| 08:45 | Opening |
| 09:00 | Talk 01: Overview, Martino Poggio, Basel |
| 09:35 | Talk 02: Timur Weber, “Development of SQUID-on-Lever”, Tübingen |
| 10:10 | Talk 03: Daniel Jetter, “Imaging using SQUID-on-Lever”, Basel |
| 10:45 | Talk 04: Antonia Weber, “Commercialization of SQUID-on-Lever”, Tübingen |
| 10:55 | Coffee break |
| 11:25 | Talk 05: Peter Rickhaus, “Quantum Sensing of Nanoscale Magnetic Textures Using Scanning NV Magnetometry”, Qnami |
| 12:00 | Talk 06: Amaia Sáenz Hernández, “Developing superconducting devices using FIB for applications in quantum technologies”, Zaragoza |
| 12:40 | Lunch |
| 14:00 | Talk 07: James Vicary, “Why AFM probe manufacturers are a critical part of your research supply chain”, Nunano |
| 14:35 | Talk 08: Armin Knoll, “Device-ready cantilevers and monolithic scanning single electron transistors”, IBM Zürich |
| 15:10 | Talk 09: Yonathan Anahory, “Edge magnetism in CrGeTe ₃ ”, Hebrew University |
| 15:45 | Coffee break |
| 16:15 | Talk 10: Paritosh Karnatak, “Probing the magnetic order in a ferromagnetic monolayer”, Basel |
| 16:50 | Talk 11: Matt Ferguson, “Imaging electronic transport in a quantum anomalous Hall insulator”, MPI Dresden |
| 17:30 | End |

26st March 2025

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| 09:00 | Talk 01: Jean-Pierre Locquet, “Epitaxial oxides for integrated photonics”, Lumiphase |
| 09:35 | Talk 02: Jose María De Teresa, “Review of nanofabrication techniques for cantilever functionalization”, Zaragoza |
| 10:10 | Talk 03: Christian Schwalb, “Correlative AFM & SEM analysis of magnetic nanostructures using 3D nanoprobes”, Quantum Design Microscopy |
| 10:45 | Coffee break |
| 11:15 | Talk 04: Simon Koch, “YBa ₂ Cu ₃ O ₇ thin film Josephson Junctions on Si Substrates fabricated by focused He ion beam irradiation”, Tübingen |
| 11:50 | Talk 05: Clemens Schaefermeier, Attocube |
| 12:30 | Lunch & End of Meeting |

Location



MINISTERIO
DE CIENCIA
E INNOVACIÓN



Delegación del CSIC ante la UE / CSIC Brussels Office
SPANISH NATIONAL RESEARCH COUNCIL
Rue du Trône, 62. Bruxelles 1050

MEETING ROOM 2:



- Location: seventh floor
 - Capacity: 25 people
 - Equipment:
 - Wireless internet
 - LED monitor 65"
 - Installation configured for hybrid meetings: Polycom Studio connected with wireless keyboard and Ethernet
 - Lenovo ThinkCentre Windows 10
 - External connections: USB and micro USB
 - The connection to an external laptop is not permitted
 - Wifi connection
 - Configuration: board meeting open rectangle
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March 26, 2025 - Walking Lunch

TO START

Frittata alle erbe aromatiche di montagna e maionese alla soia
Omelette with mountain herbs and soy mayonnaise
(gluten free/vegetariano)

Rollè di pollo: sedano, formaggio e uva passa
Chicken roll: celery, cheese and raisins
(gluten free)

Selezione di salumi e formaggi Piemonte
Selection of cold cuts and cheeses

Insalata di ceci, pomodorini, cetriolo, rucola, menta e cipolla rossa
Chickpea salad, cherry tomatoes, cucumber, rucola, mint and red onion
(vegan/gluten free)

MAIN COURSE

**Mezze maniche con crema di zucca, Gorgonzola e prosciutto crudo di
Cocconato***

Mezze maniche pasta with pumpkin cream, Gorgonzola and Cocconato
raw ham

***Vegan option:**

Mezze maniche with with tomato sauce and mushrooms
