

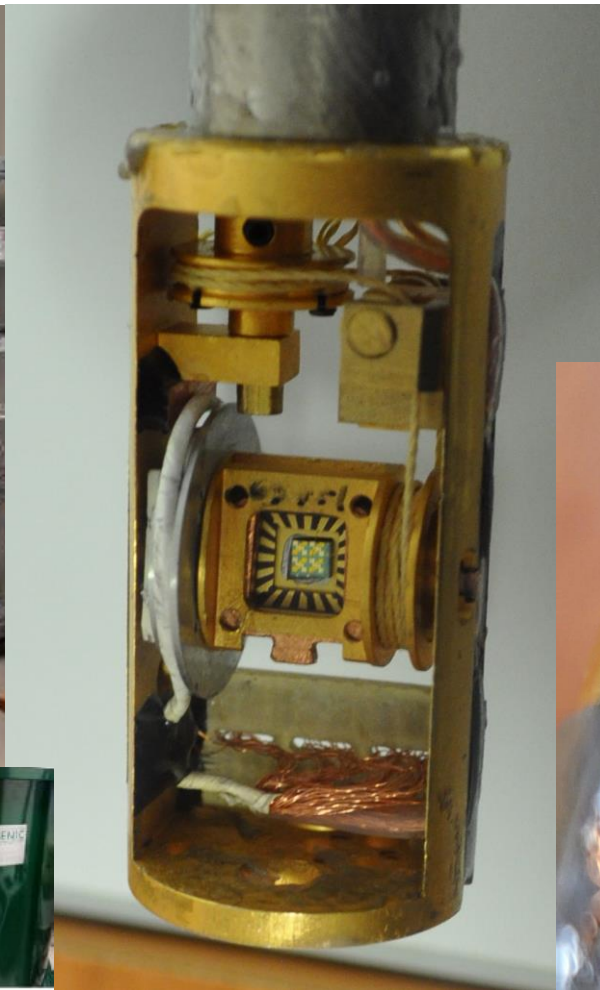


Low temperature testing of a-Si:H detectors



Istituto Nazionale di Fisica Nucleare
Sezione di Lecce

Low temperature testing of a-Si:H detectors

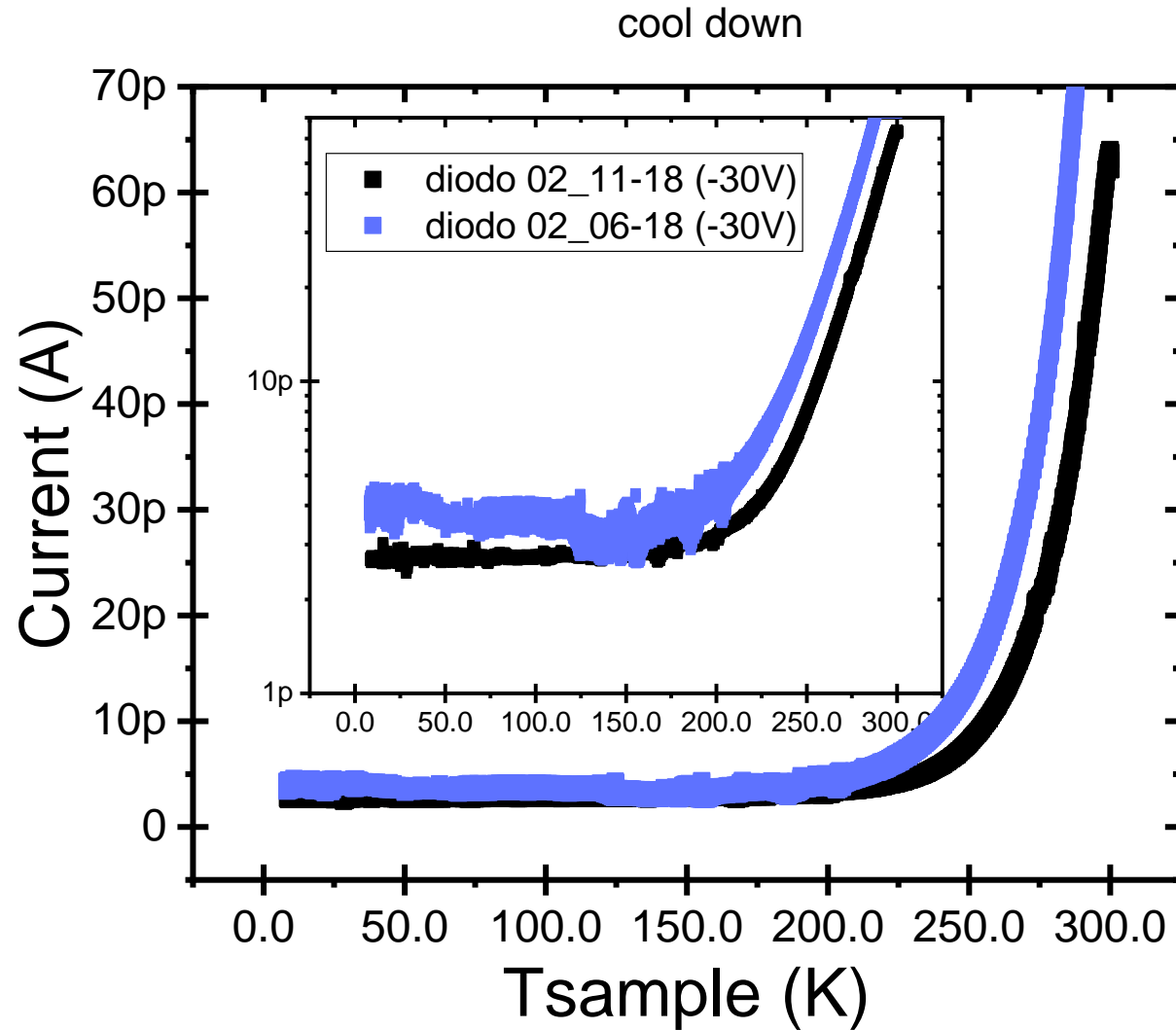


SETUP



Cryogenic superconducting magnet (10.5 T, 0.3-300 K)

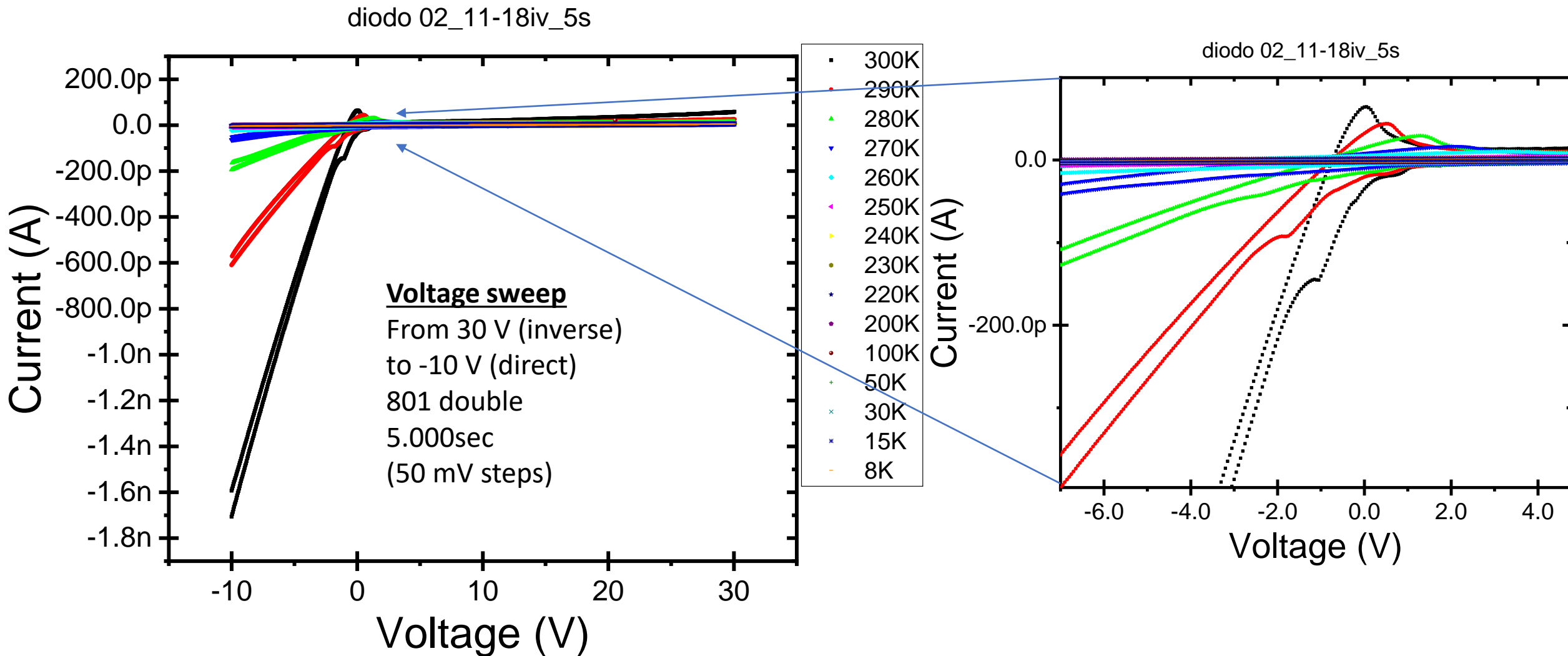
Current vs temperature plots for two diodes



SETUP



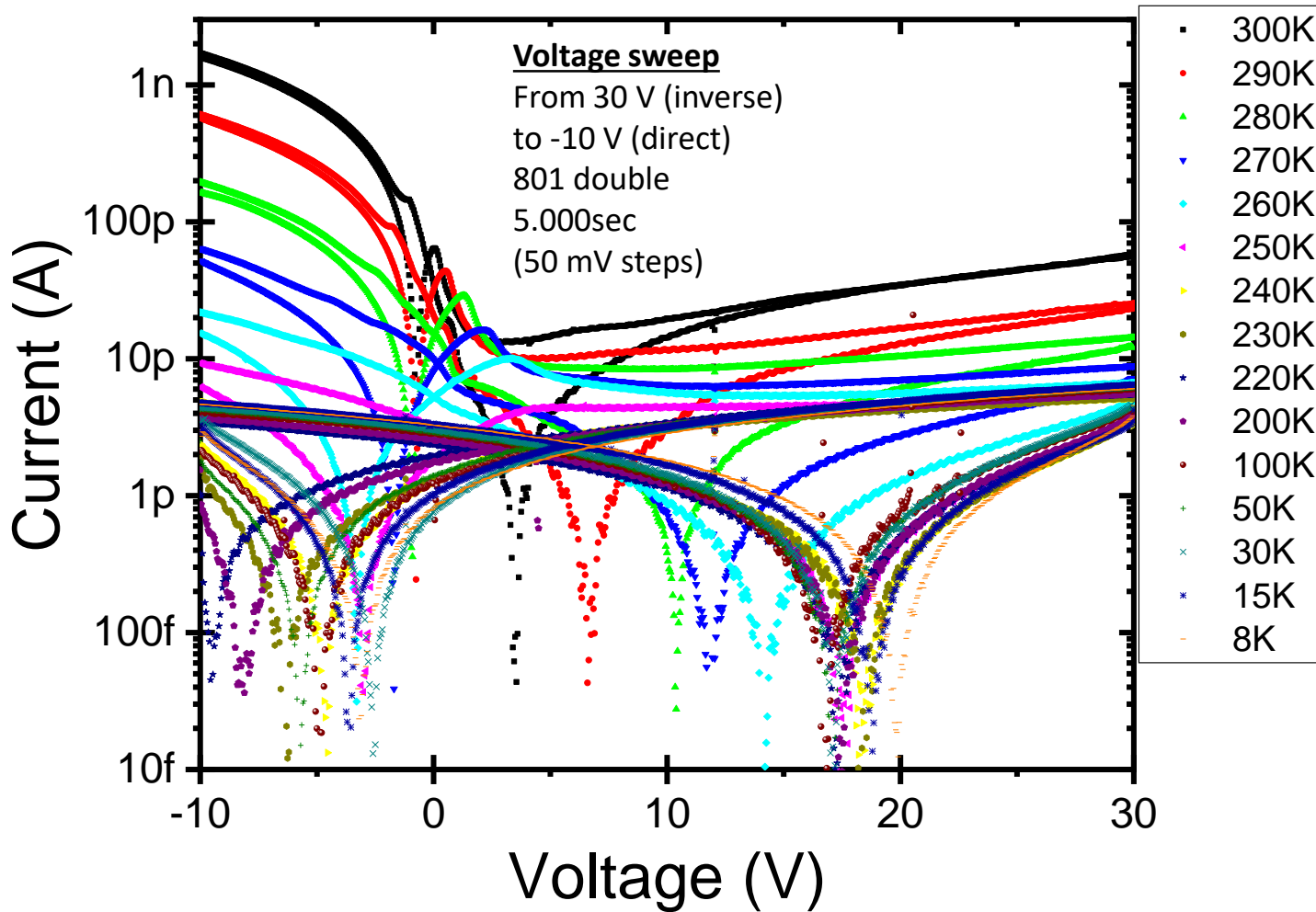
IV characteristics vs Temperature



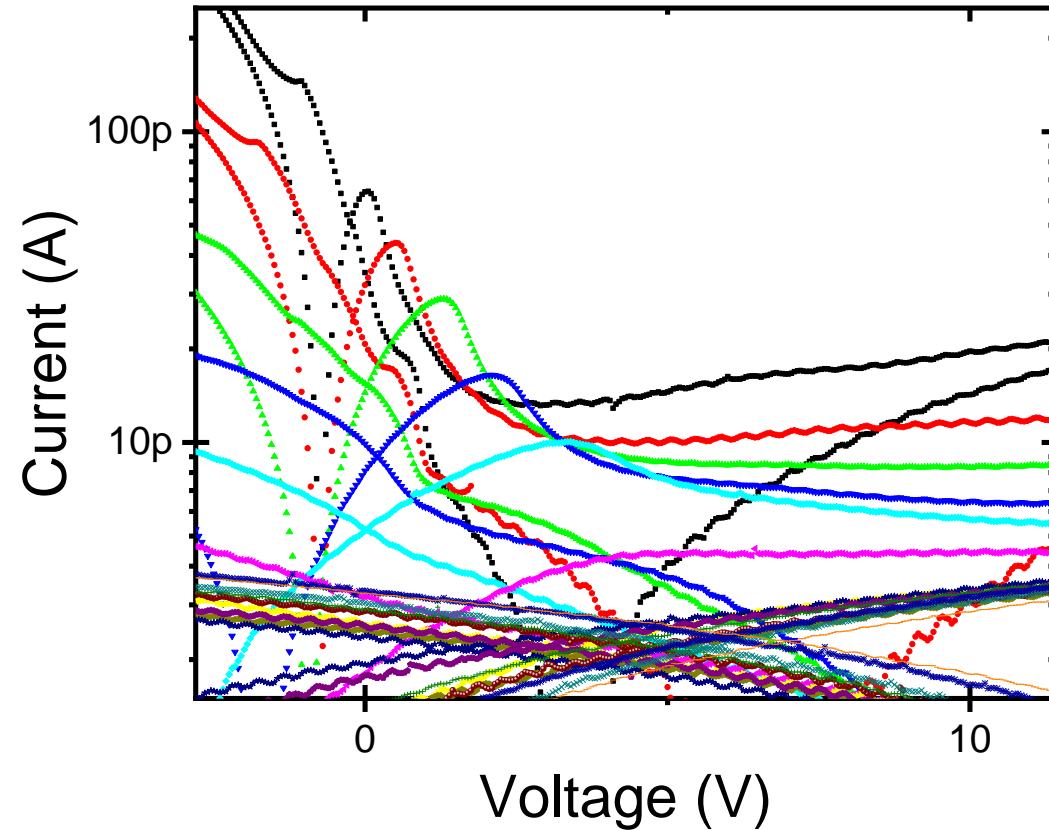
IV characteristics vs Temperature – log scale



diodo 02_11-18iv_5s



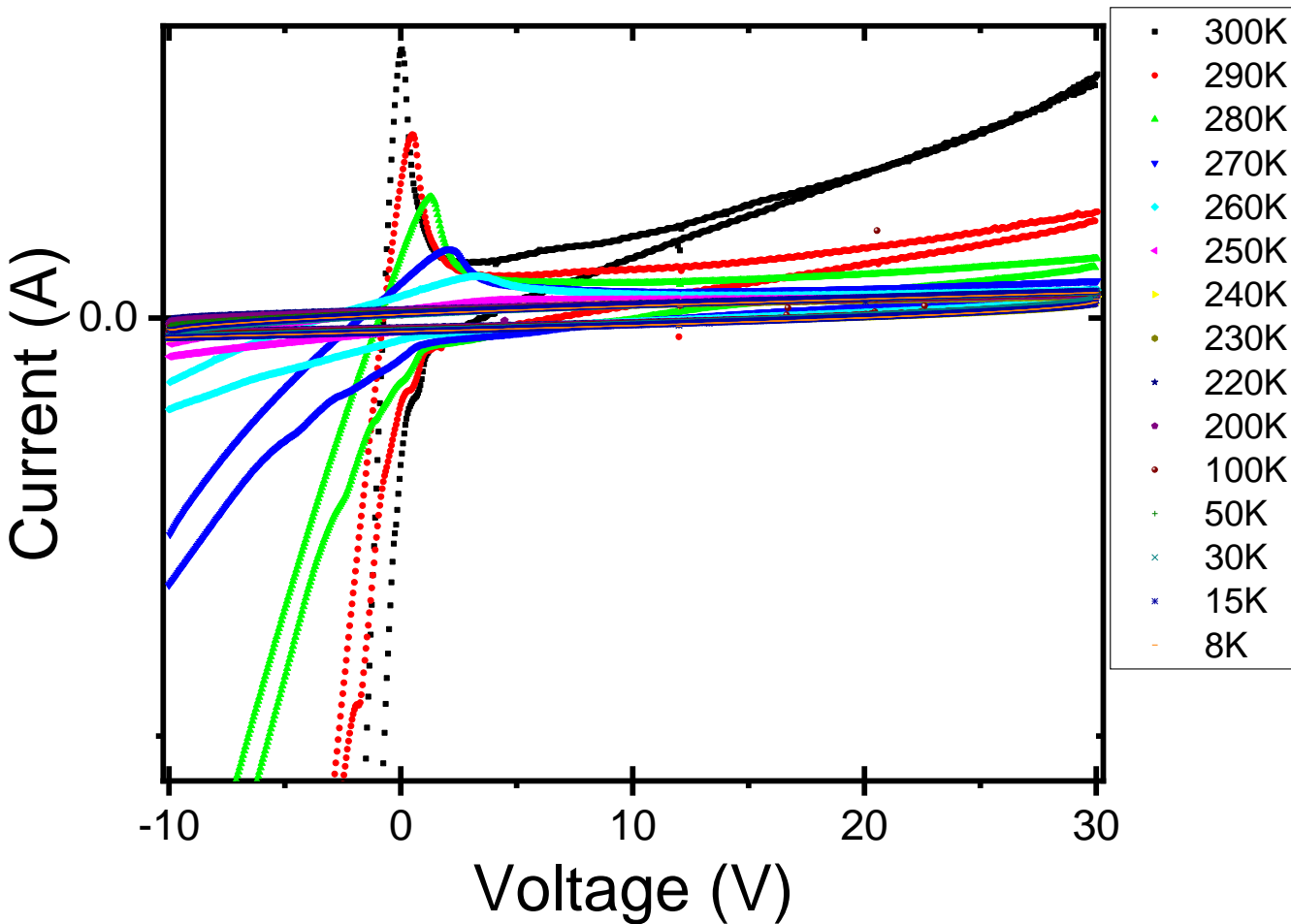
diodo 02_11-18iv_5s



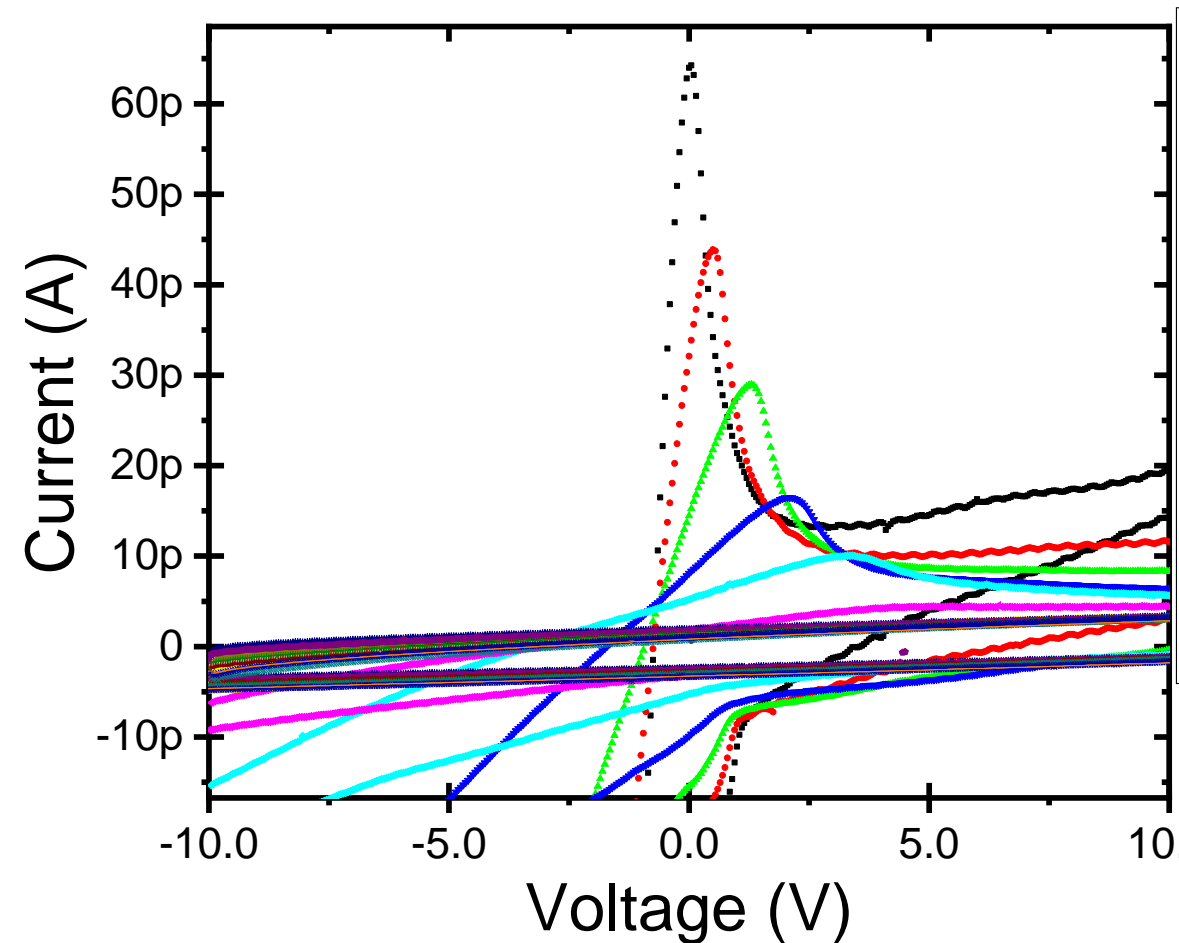
IV characteristics vs Temperature



diodo 02_11-18iv_5s



diodo 02_11-18iv_5s

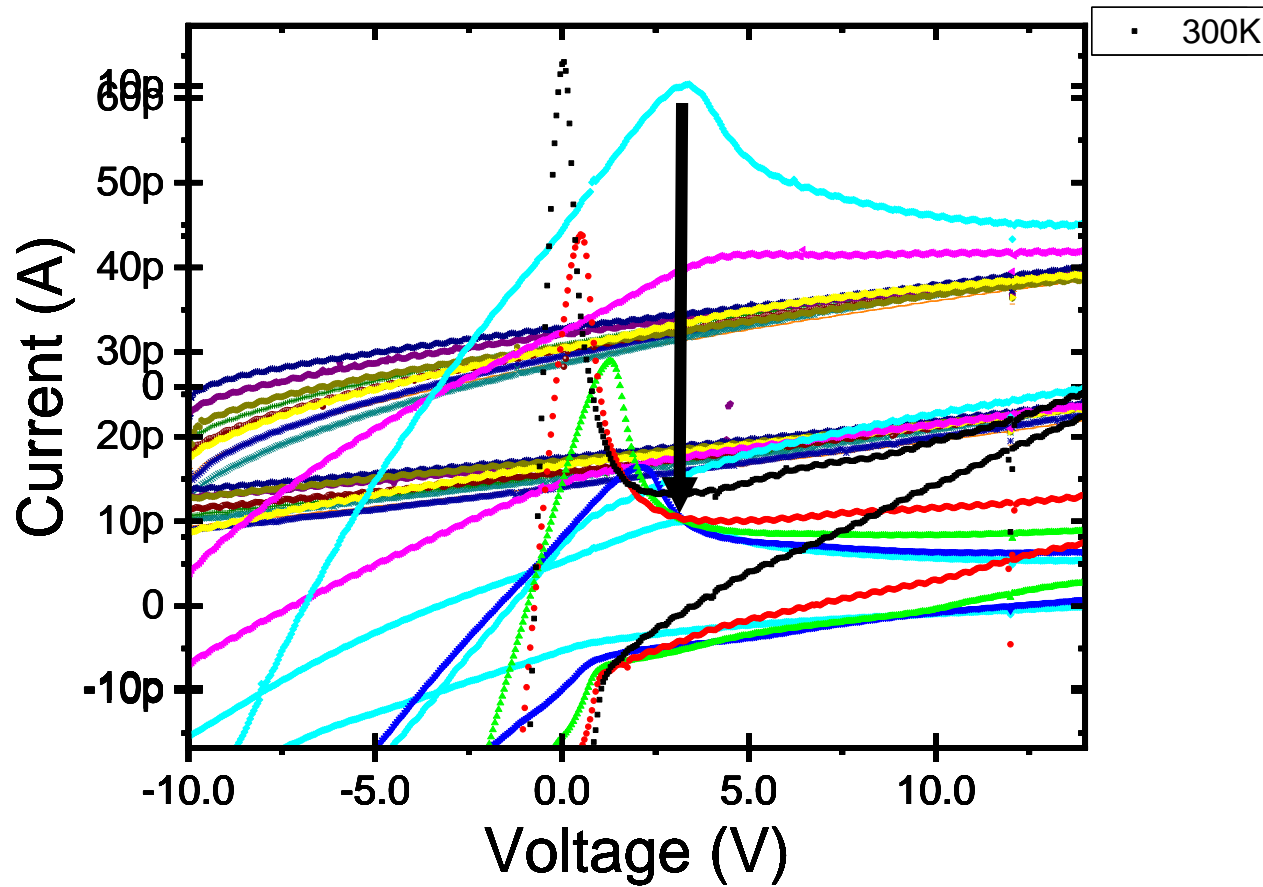


IV characteristics vs Temperature

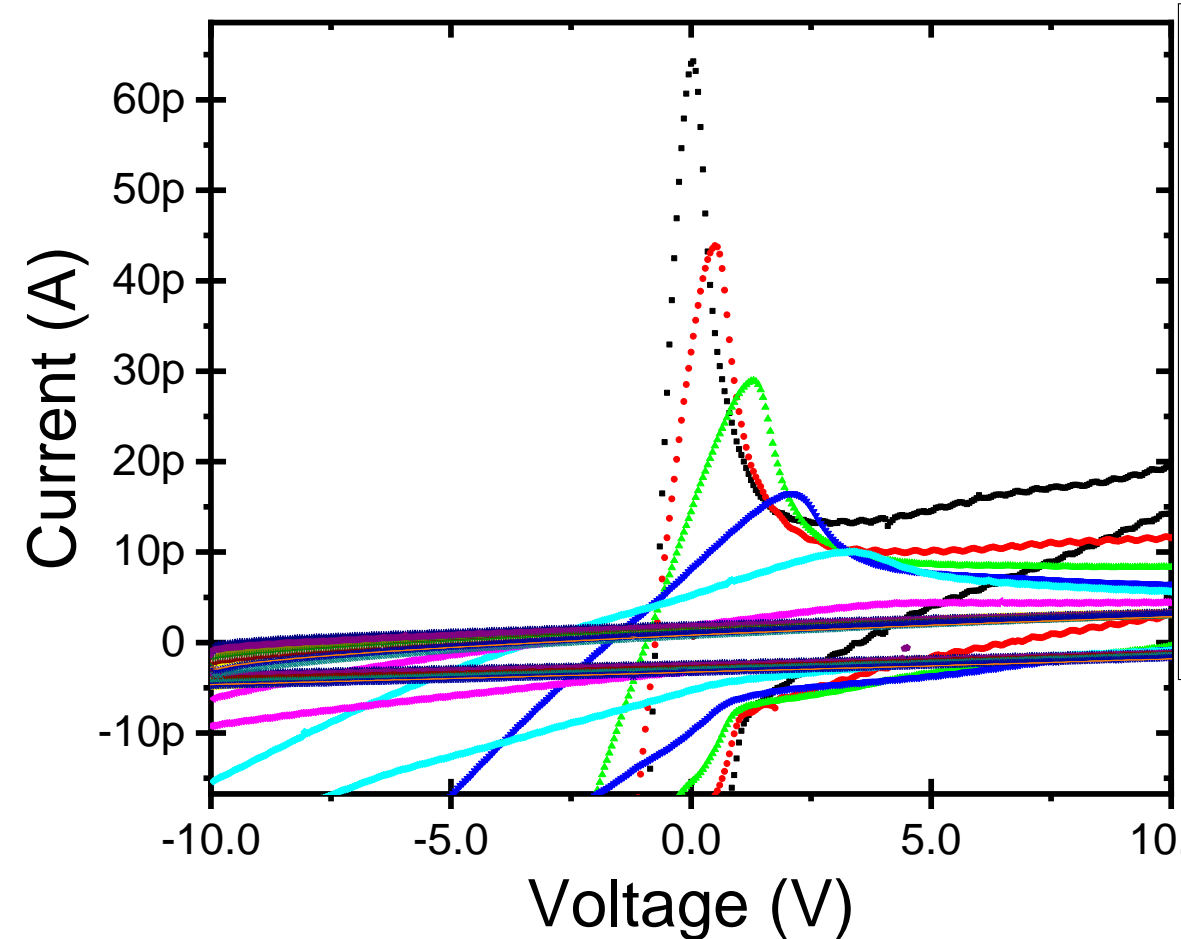


video

diodo 02_11-18iv_5s



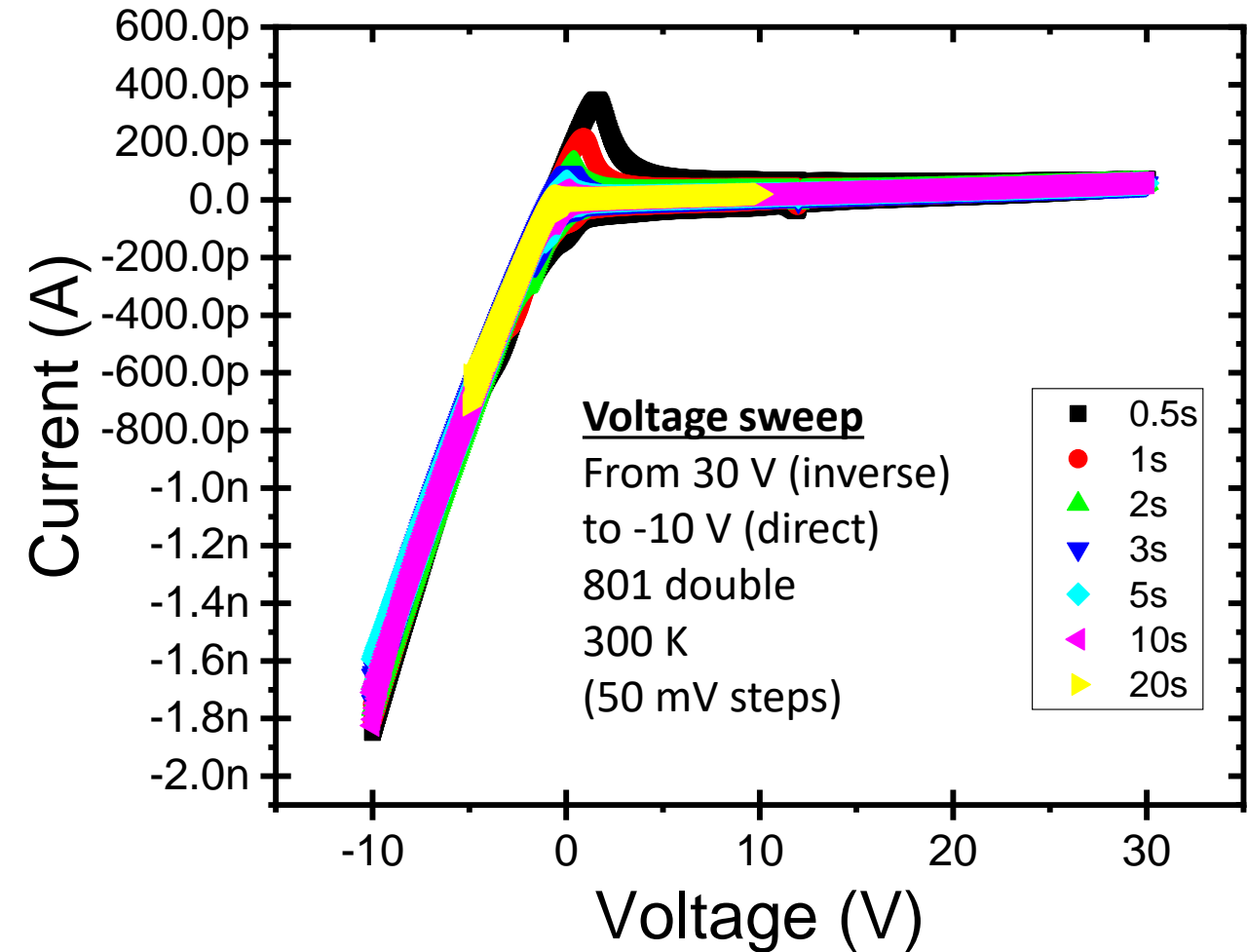
diodo 02_11-18iv_5s



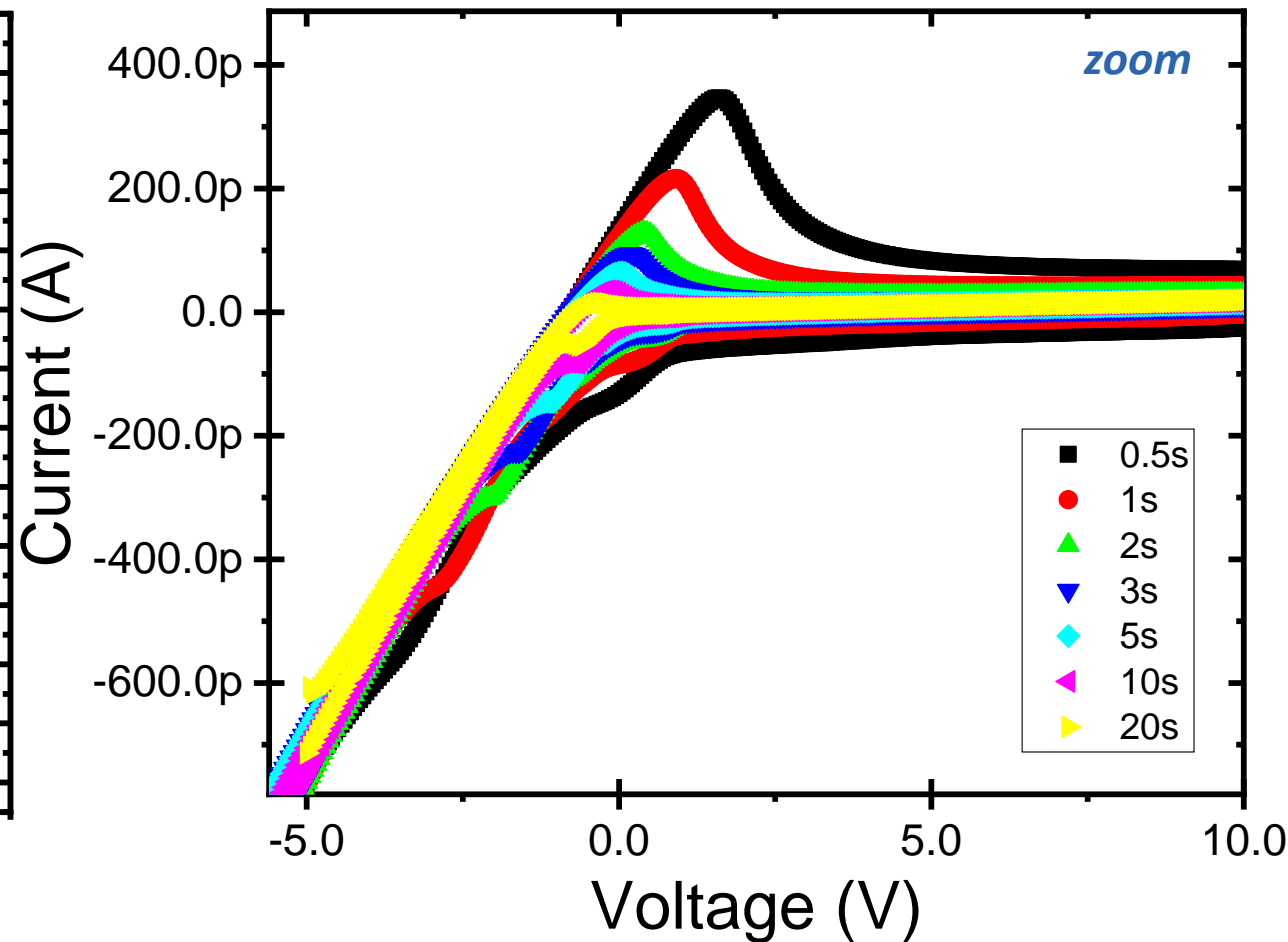
IV characteristics vs scan rate



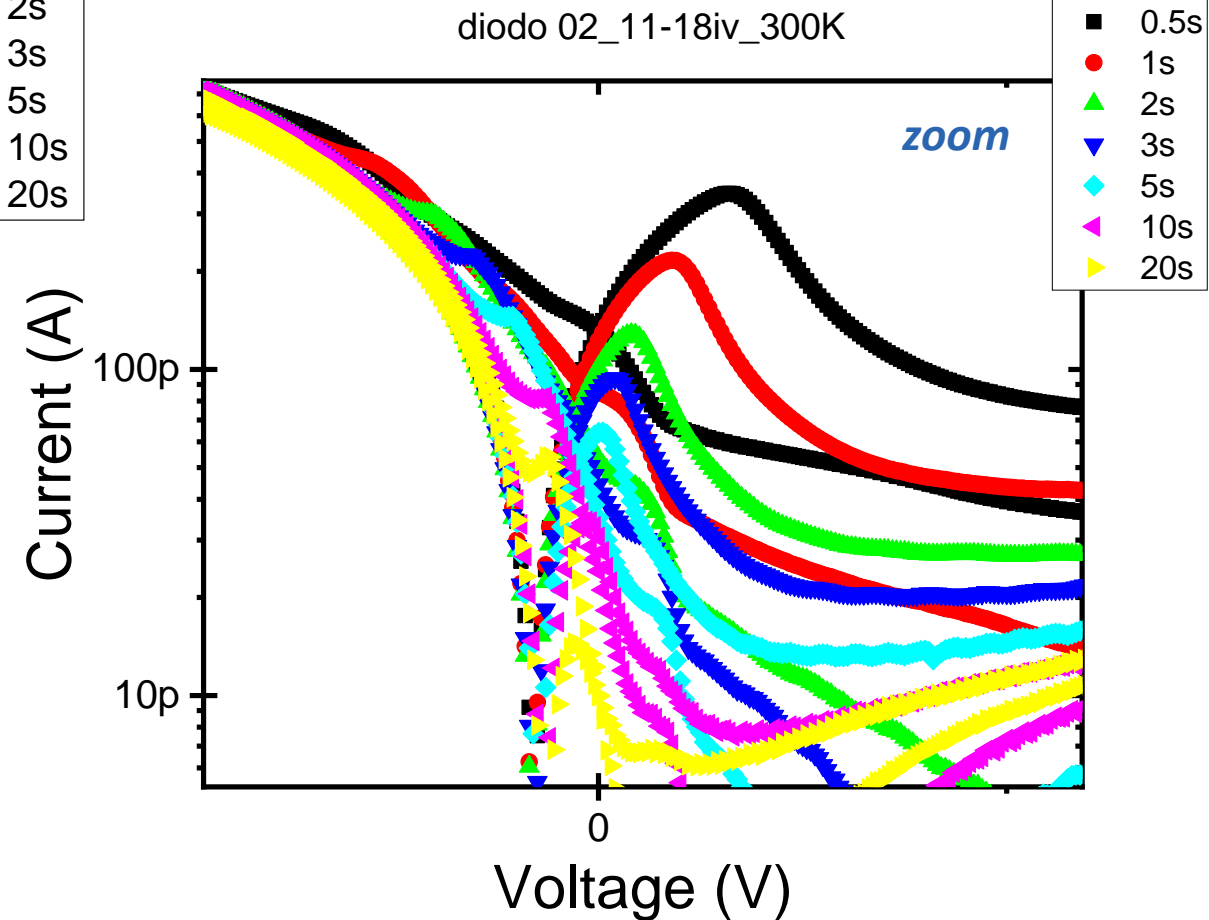
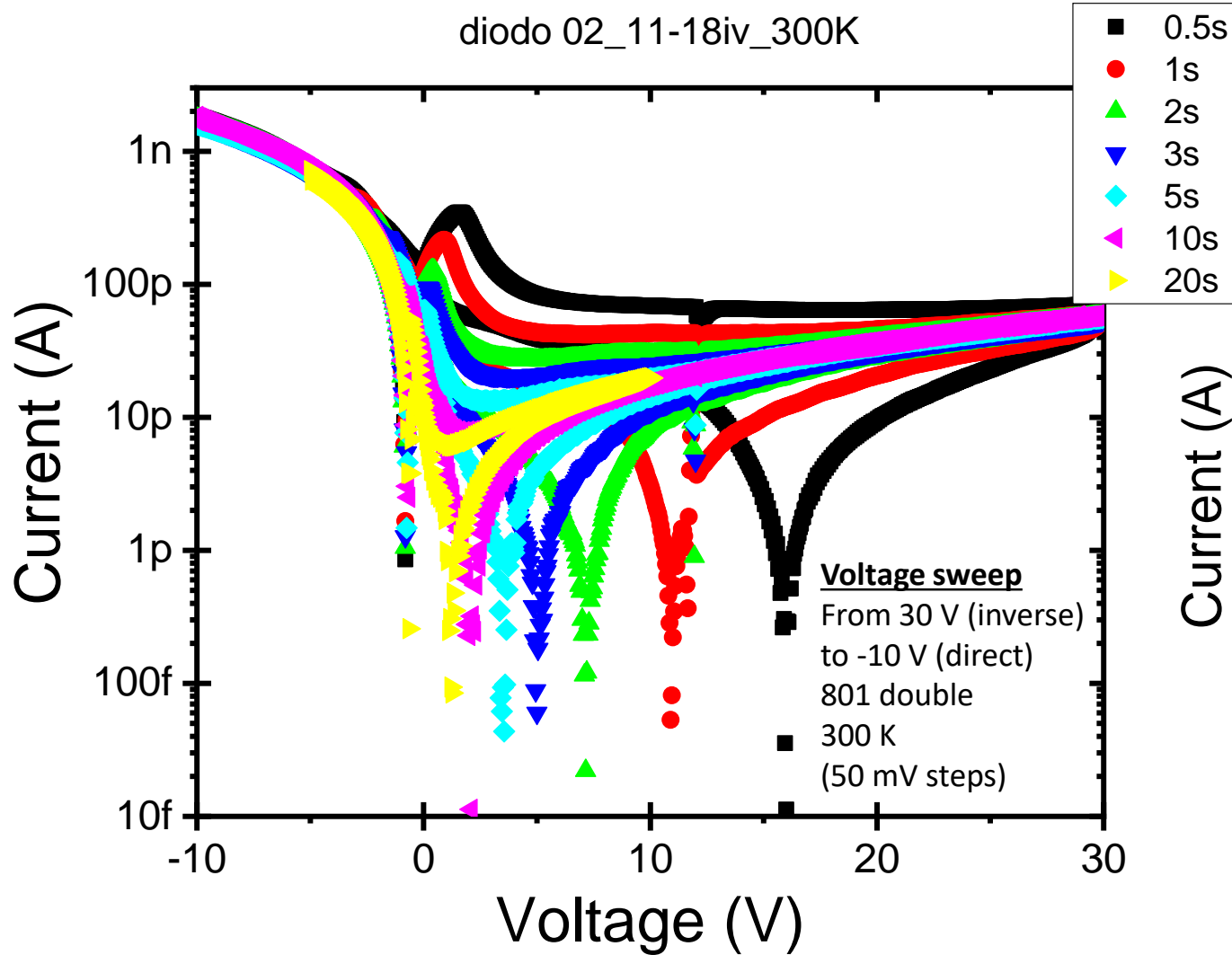
diodo 02_11-18iv_300K



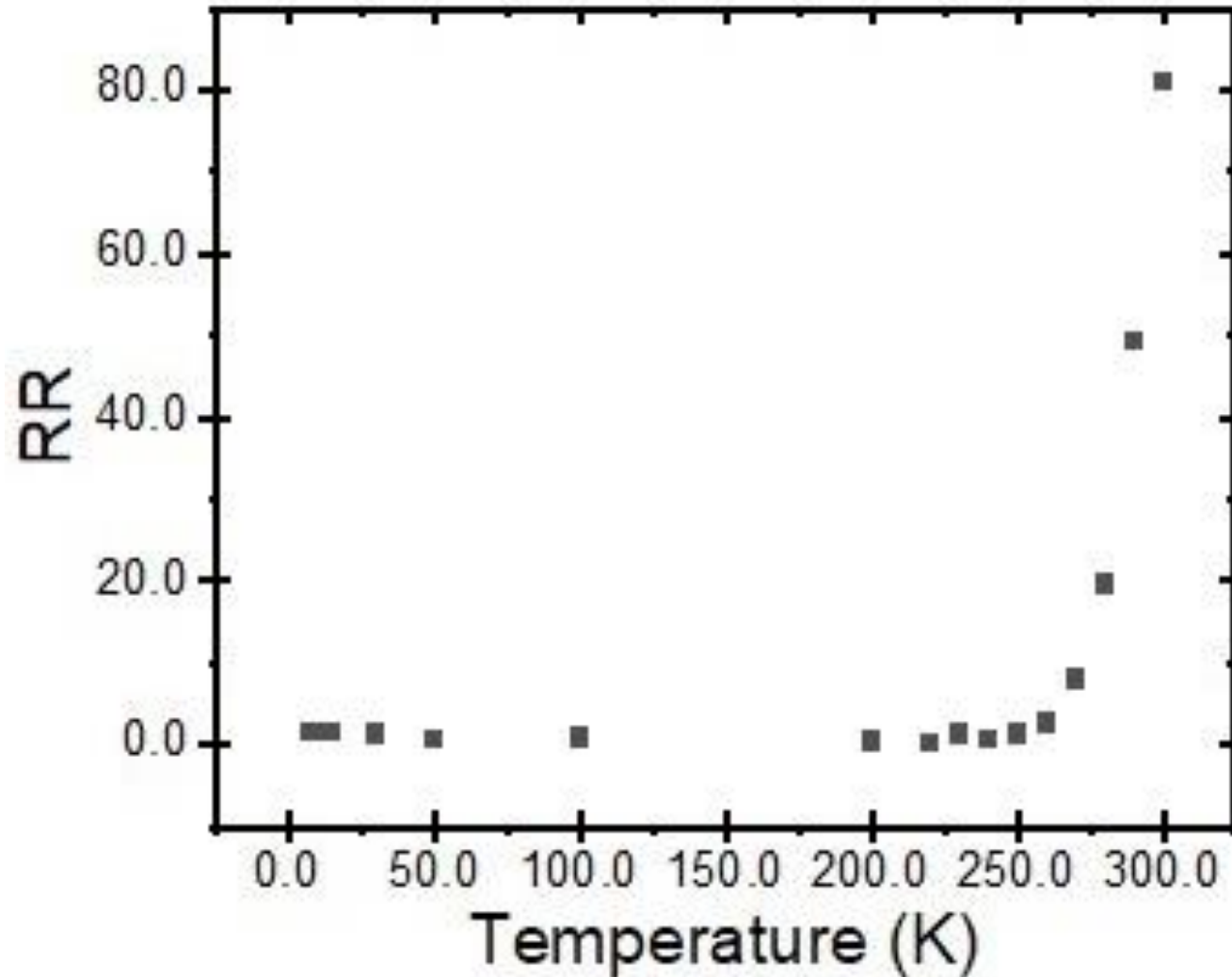
diodo 02_11-18iv_300K



IV characteristics vs scan rate – log scale



Low temperature testing of a-Si:H detectors





Low temperature testing of a-Si:H detectors

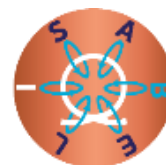


EMFL-ISABEL-IRIS Infrastructure / Omnics Lab

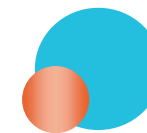


IRIS - Innovative Research Infrastructure on applied Superconductivity

PNRR - M4C2I3.1 (2022-2025): Innovative Research Infrastructure on applied Superconductivity (IRIS), Prot. IR0000003, Avviso n. 3264 del 28/12/2021 "Rafforzamento e creazione di IR nell'ambito del Piano Nazionale di Ripresa e Resilienza (PNRR), Total Funding 60 M€



European Magnetic Field Laboratory



UE-H2020-INFRADEV-2018-2020 (2020-2024): Improving the sustainability of the European Magnetic Field Laboratory (ISABEL), Grant No. 871106, EC funding: 4.9 M€, Work programme topic addressed: Development and long-term sustainability of new pan-European research infrastructures), Topic: INFRADEV-03-2018-2019 - Individual Support To ESFR And Other World-Class Research Infrastructures.



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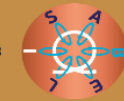
The University of the two seas



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OMNICS research group



EMFL European Magnetic Field Laboratory

giuseppe.maruccio@unisalento.it

<http://www.omnics.it/home/>

National and EU Infrastructure for Magnetism and Superconductivity

Present major equipment



Cryogenic superconducting magnet (10.5 T, 0.3-300 K)



Oxford dilution refrigerator (down to 10 mK, vector magnet 6T/1T/1T)



Lakeshore Cryogenic RF probe station (8 K, 0.5 T and 70 GHz)

DEVELOPMENT PLAN

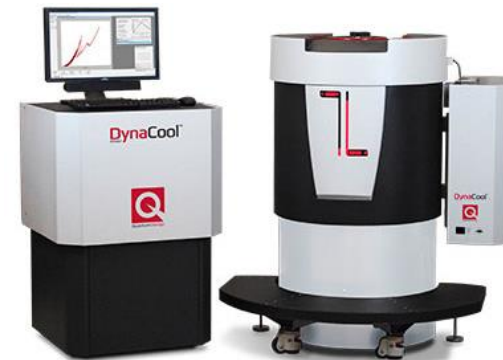


close-cycle SQUID magnetometer

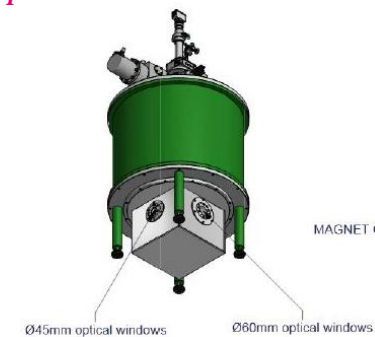


scanning probe microscope for material characterization

close-cycle superconducting magnet for physical properties measurement



split pair cryogen-free magnet system for combined magneto-optical and FMR measurements



EU and IT infrastructures



EU / EMFL-ISABEL



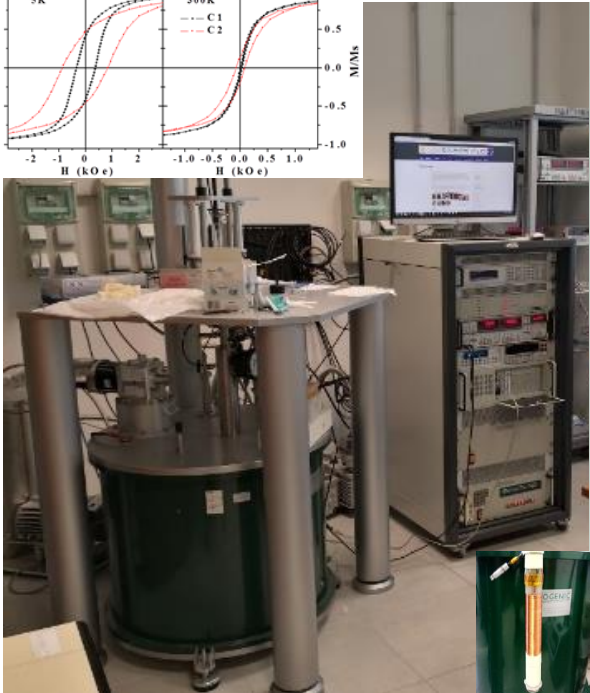
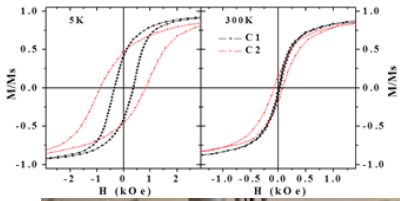
IT Magnetism Network



EMFL-ISABEL-IRIS Infrastructure / Omnics Lab

LABORATORY FOR SUPERCONDUCTIVITY AND MAGNETISM

• CRYO-SPINTRONICS LAB



Cryogenic superconducting magnet (10.5 T, 0.3-300 K)



Lakeshore EMPX-HF Cryogenic RF probe station (8 K, 0.5 T and 70 GHz)

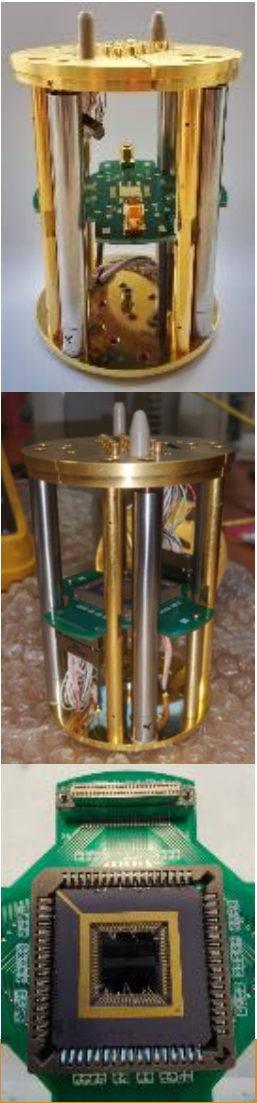
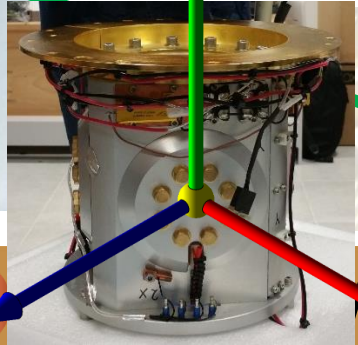
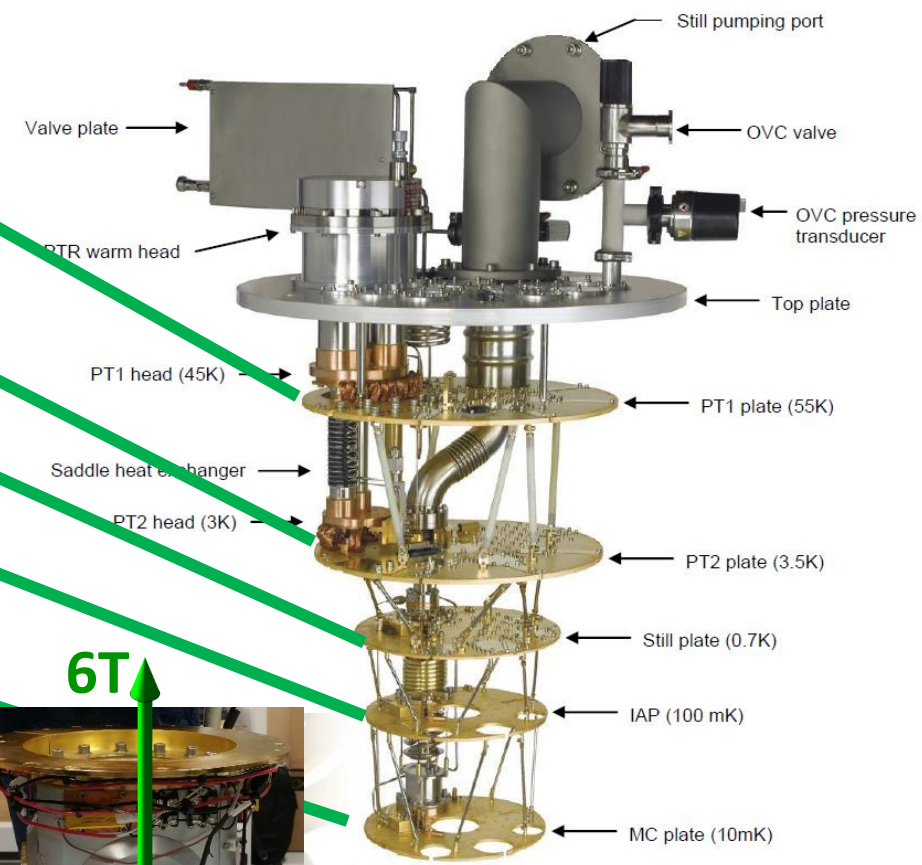
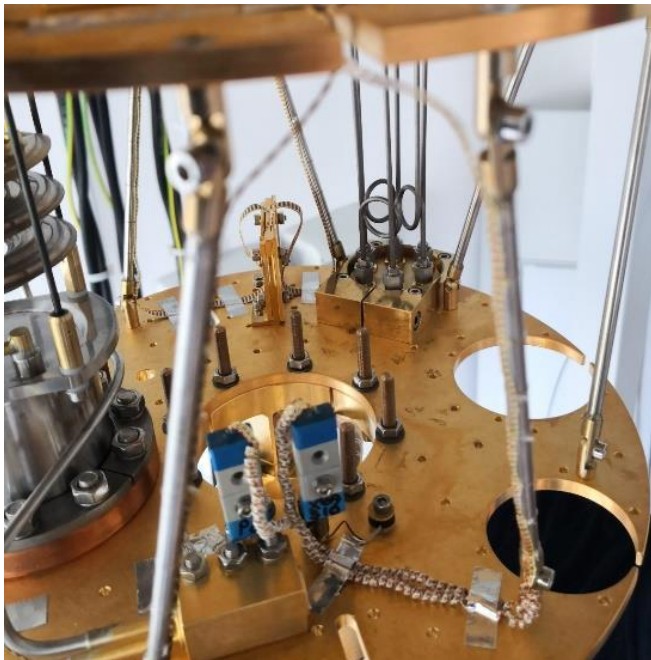


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LABORATORY FOR SUPERCONDUCTIVITY AND MAGNETISM

• CRYO-SPINTRONICS

Oxford dilution refrigerator (down to 10 mK, vector magnet 6T/1T/1T)

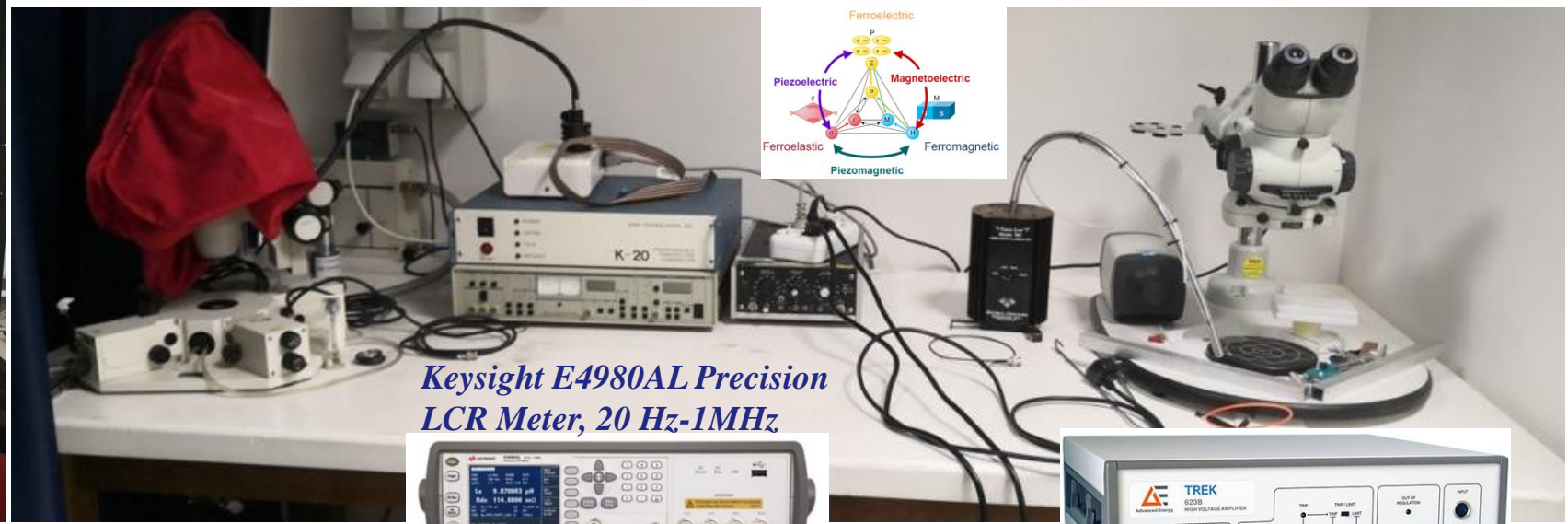
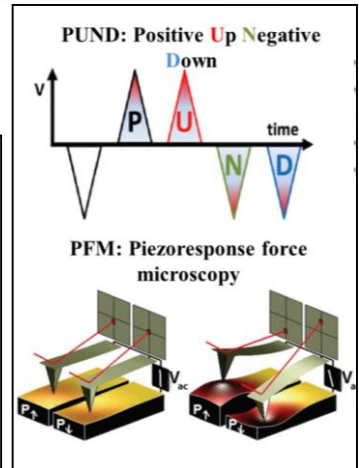
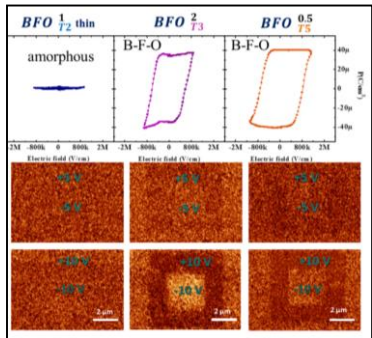
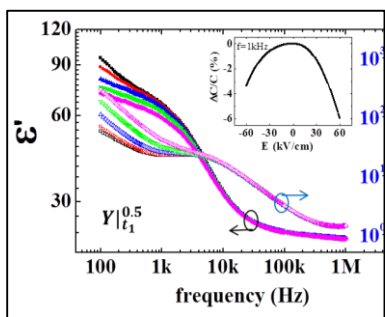
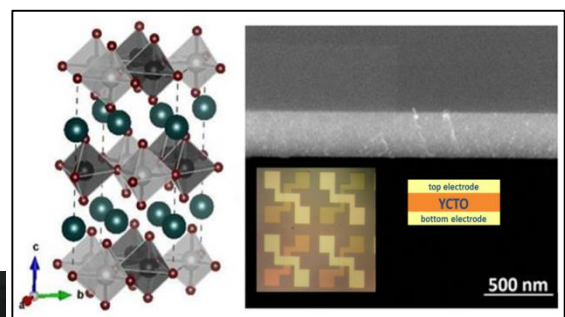


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LABORATORY FOR SUPERCONDUCTIVITY AND MAGNETISM

• TRANSPORT LAB

B1500 Parameter Analyzer



Keysight E4980AL Precision LCR Meter, 20 Hz-1MHz

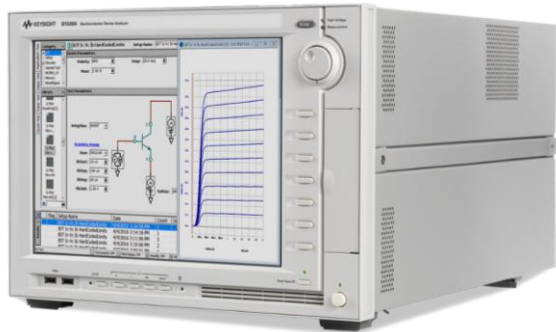


Trek High Voltage amplifier

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LABORATORY FOR SUPERCONDUCTIVITY AND MAGNETISM

• PRESENT STATUS – MAIN ELECTRONICS EQUIPMENT



B1500 Parameter Analyzer



Agilent MXA N9010 spectrum analyzer, 10kHz-26.5GHz



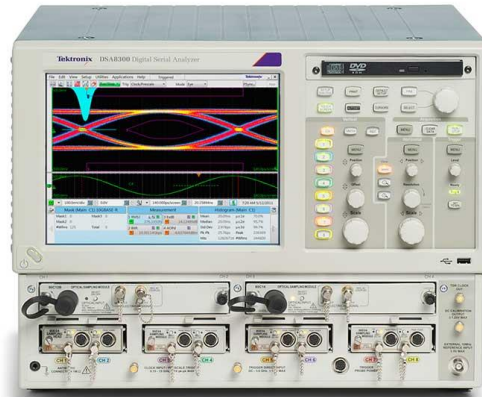
Agilent MXG N5183A signal generator, 100kHz-20GHz



Rohde & Schwarz SMA100B Signal Generator, 8kHz-20 GHz



Keysight ENA Network/Impedance Analyzer E5061B



ultrafast digital sampling oscilloscope (Tektronix DSA8300)



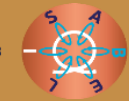
Keysight E4980AL Precision LCR Meter, 20 Hz-1MHz



Trek High Voltage amplifier



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<http://www.omnics.it/home/>

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DEVELOPMENT PLAN



close-cycle SQUID magnetometer



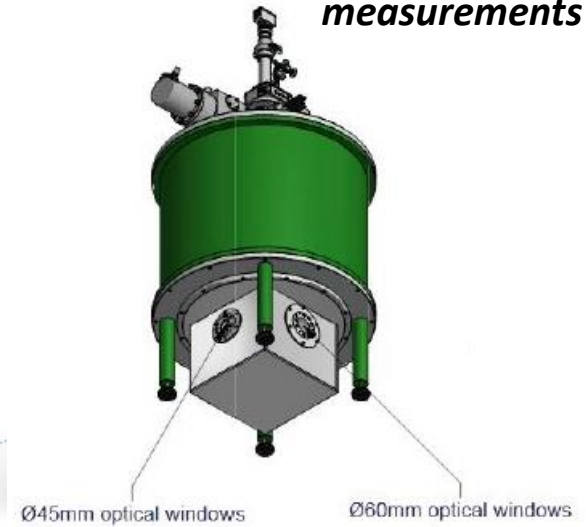
close-cycle superconducting magnet for physical properties measurement



scanning probe microscope for material characterization



split pair cryogen-free magnet system for combined magneto-optical and FMR measurements



ZNA vector network analyzer @ 67 GHz



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MATERIALS DEP. LAB & CLEAN ROOM FACILITY

