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RADES

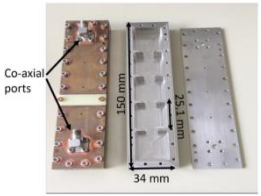
RADES team

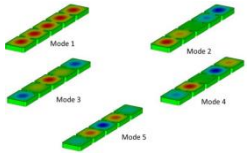
KIT, Aalto U., MMP, Zaragoza U., CERN, Barcelona U., Cartagena U., LPENS, IFIC, ICMAB…

2nd RADES collaboration meeting in 2024 at MPP

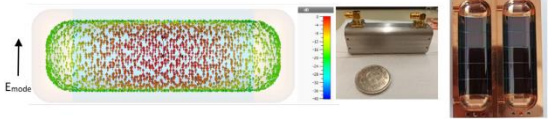
Previous campaigns

- 2018 at CAST (CERN) multicavity





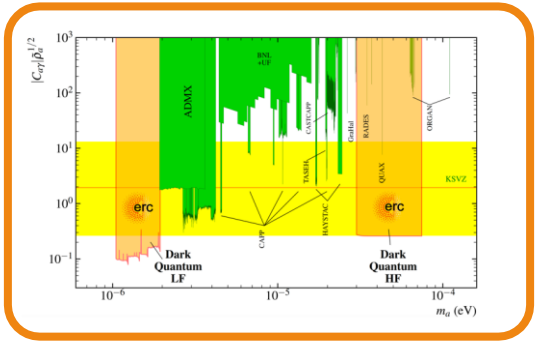
- 2021 at SM18(CERN) HTS coating



Next steps

Plan de Recuperación, Transformación y Resiliencia

Dark Quantum
ERC Synergy Grant 2023



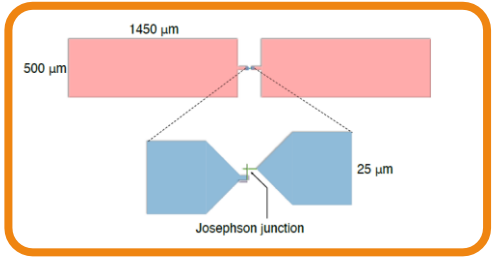
200-500 MHz (BabyIAXO magnet)

8-18 GHz

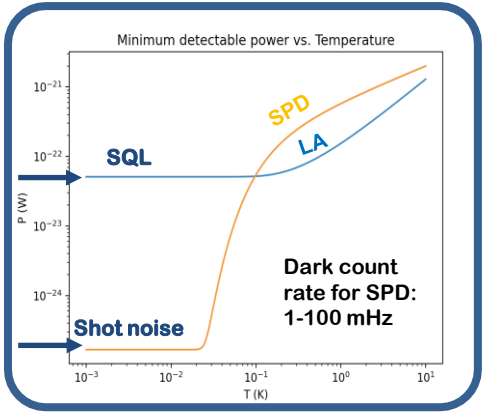
QUANTUM SENSORS

Single photon counter (SPC) for microwaves.
Qubit: Anharmonic oscillator

Measure number of photons instead of power.
Very low dark count rate: allows faster measurements.



Transmon pattern



Single-photon detector (SPD) vs Linear Amplifier (LA)

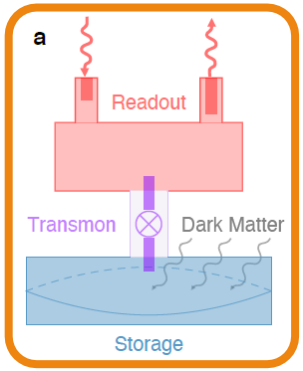
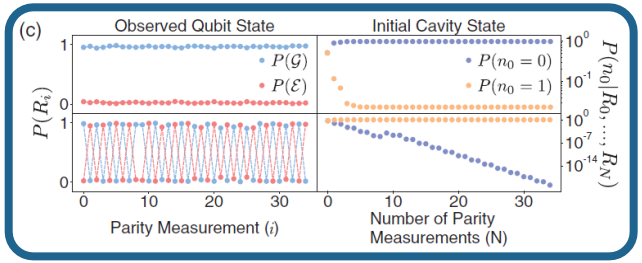


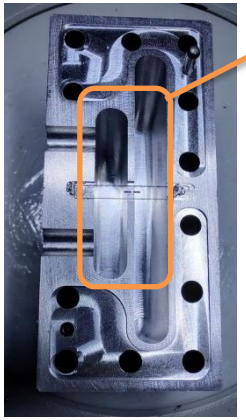
Diagram of SPC



Non demolition parity measurements

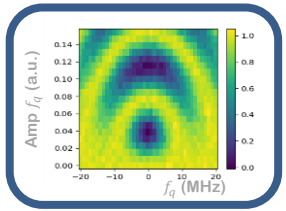
EXPERIMENTAL MEASUREMENTS

Different cavities and transmons designs

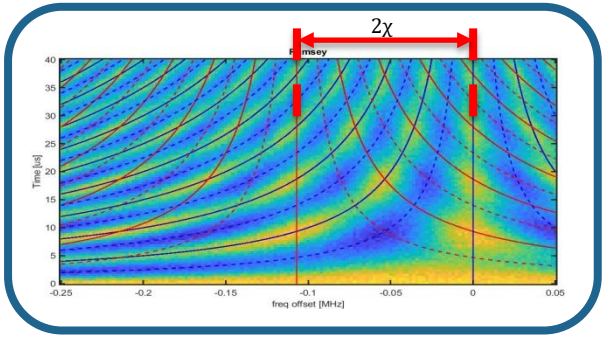


Qubit characterization and manipulation

Rabi oscillations



Ramsey measurement



Ramsey chevrons with thermal photons in the cavity (double pattern appears)