



PNRR, NQSTI e INFN Pisa



Claudio Puglia

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Finanziato
dall'Unione europea
NextGenerationEU

1. Cos'è l'NQSTI?
2. Obiettivi NQSTI
3. Il Presentatore



Consorzio di 20 entità italiane che portano avanti la

ricerca nell'ambito delle Quantum Science and Technology



(SQT)



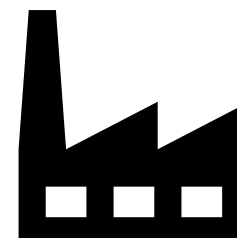


Creare un ecosistema italiano per lo
sviluppo di Tecnologie Quantistiche



Creare un ecosistema italiano per lo
sviluppo di Tecnologie Quantistiche

Stimolare le innovazioni industriali
nell'ambito delle Tecnologie Quantistiche

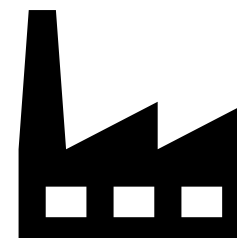




Creare un ecosistema italiano per lo sviluppo di Tecnologie Quantistiche



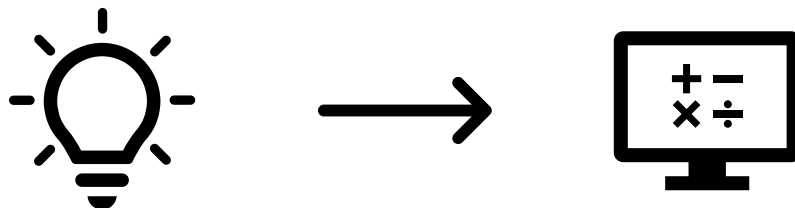
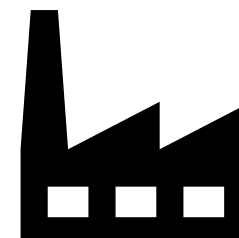
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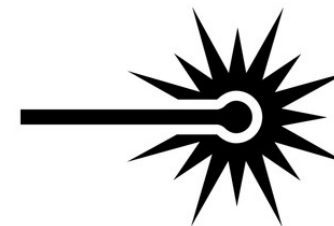
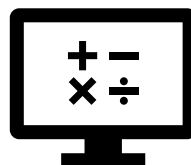
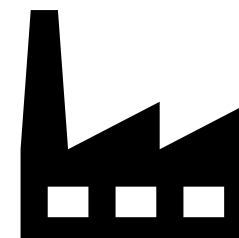
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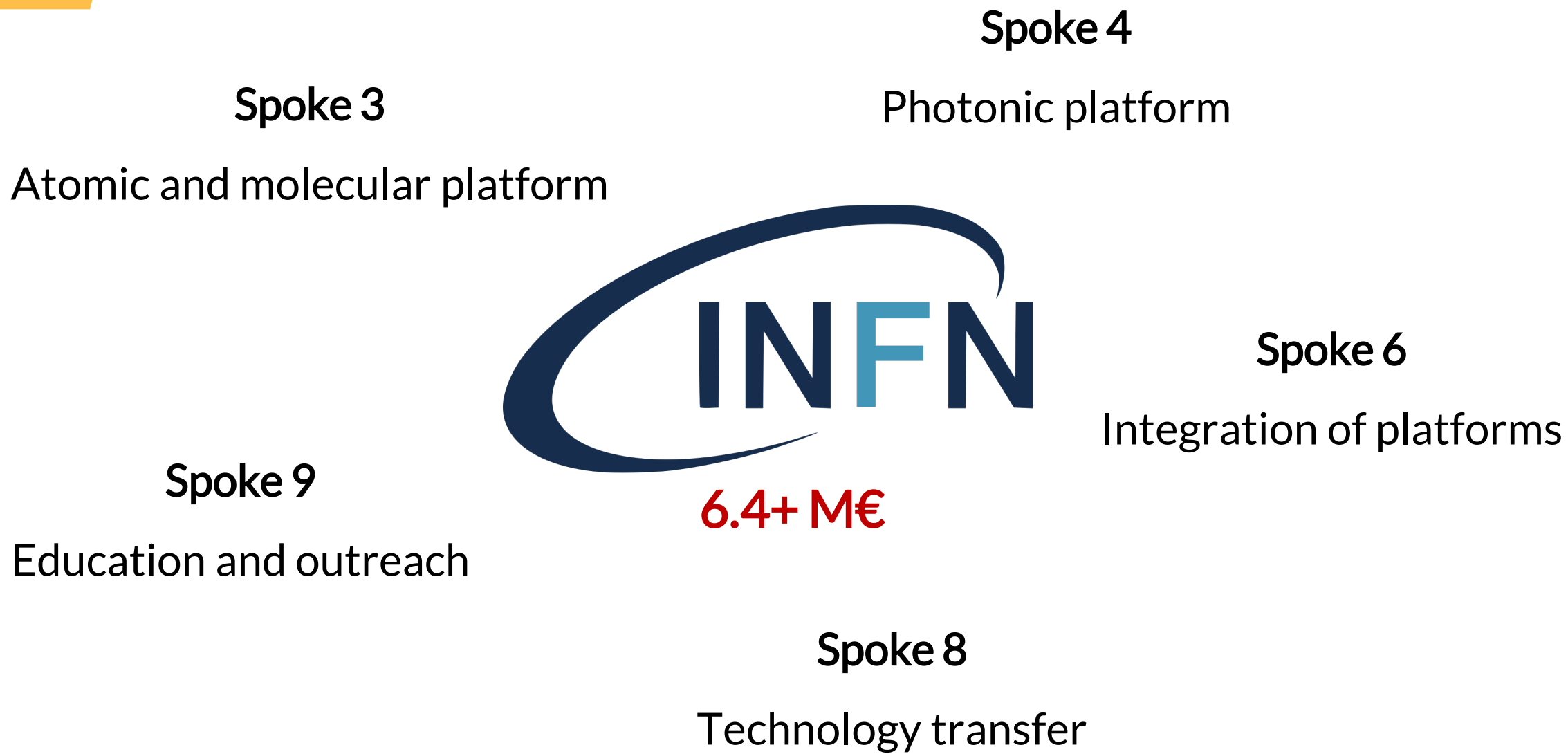




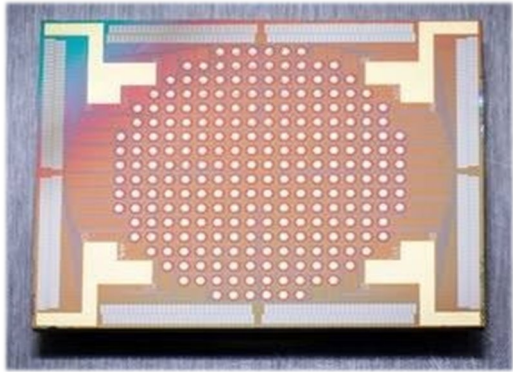
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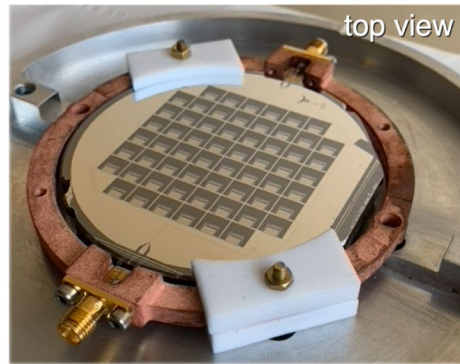




Sensori a stato solido superconduttivi «classici»



Transition Edge Sensor

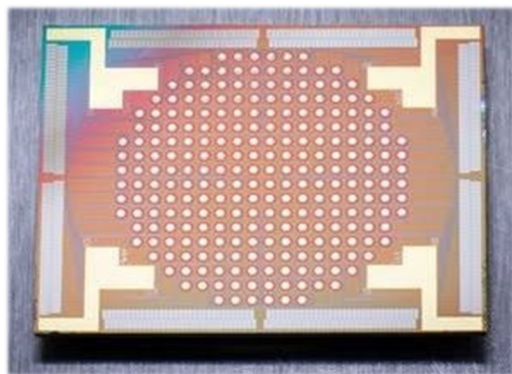


Kinetic Inductance Detector

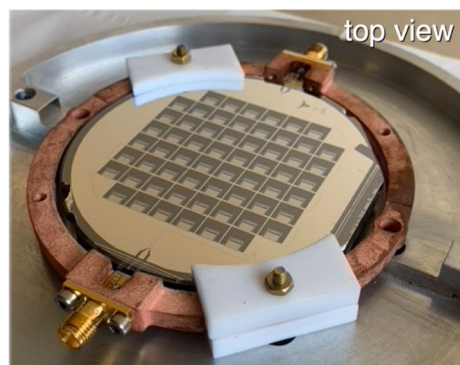


Cavità a radiofrequenza

Sensori a stato solido superconduttivi «classici»



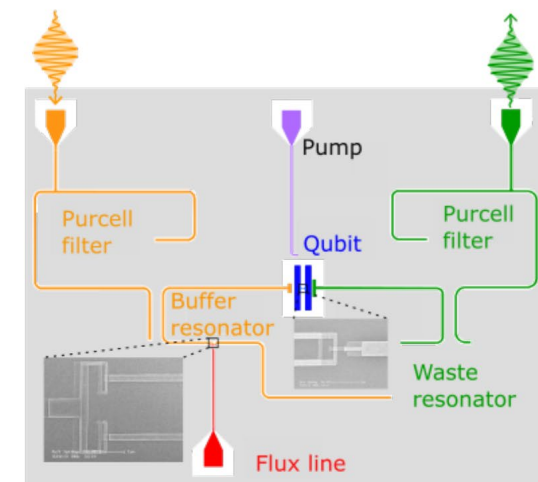
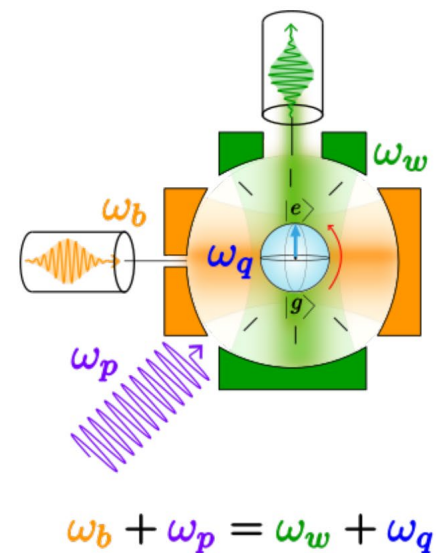
Transition Edge Sensor



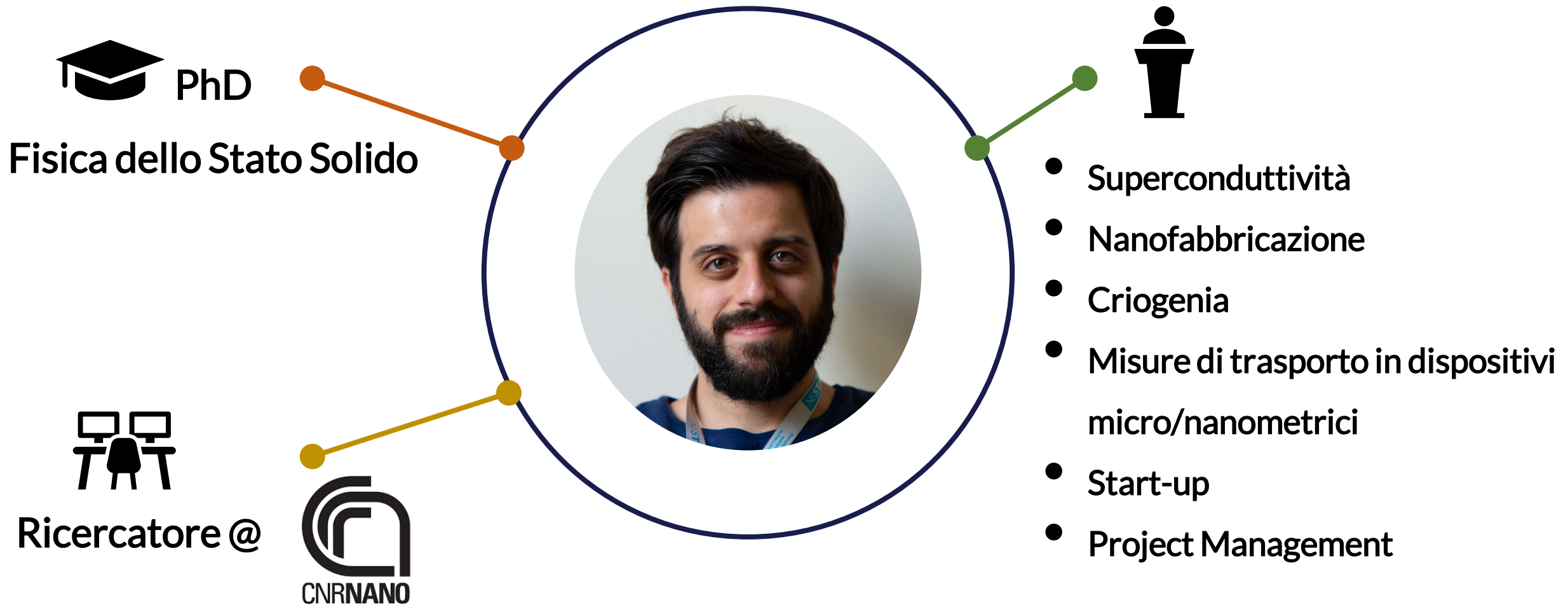
Kinetic Inductance Detector

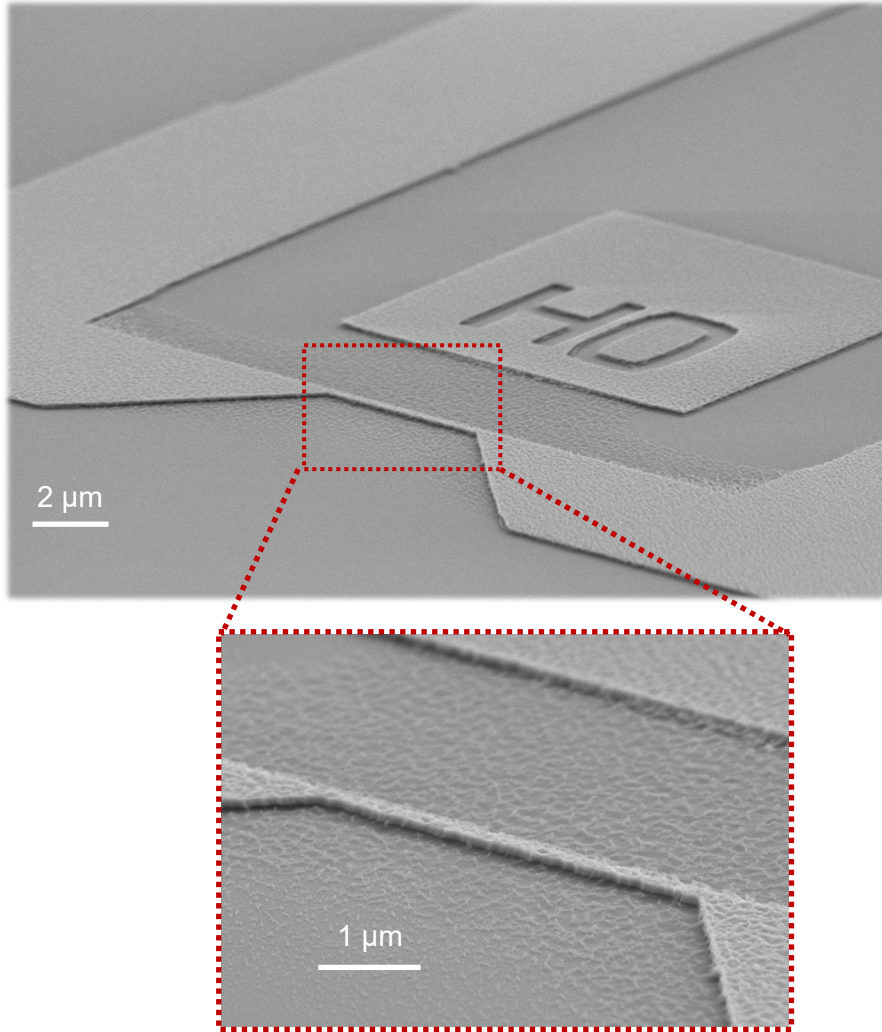


Cavità a radiofrequenza

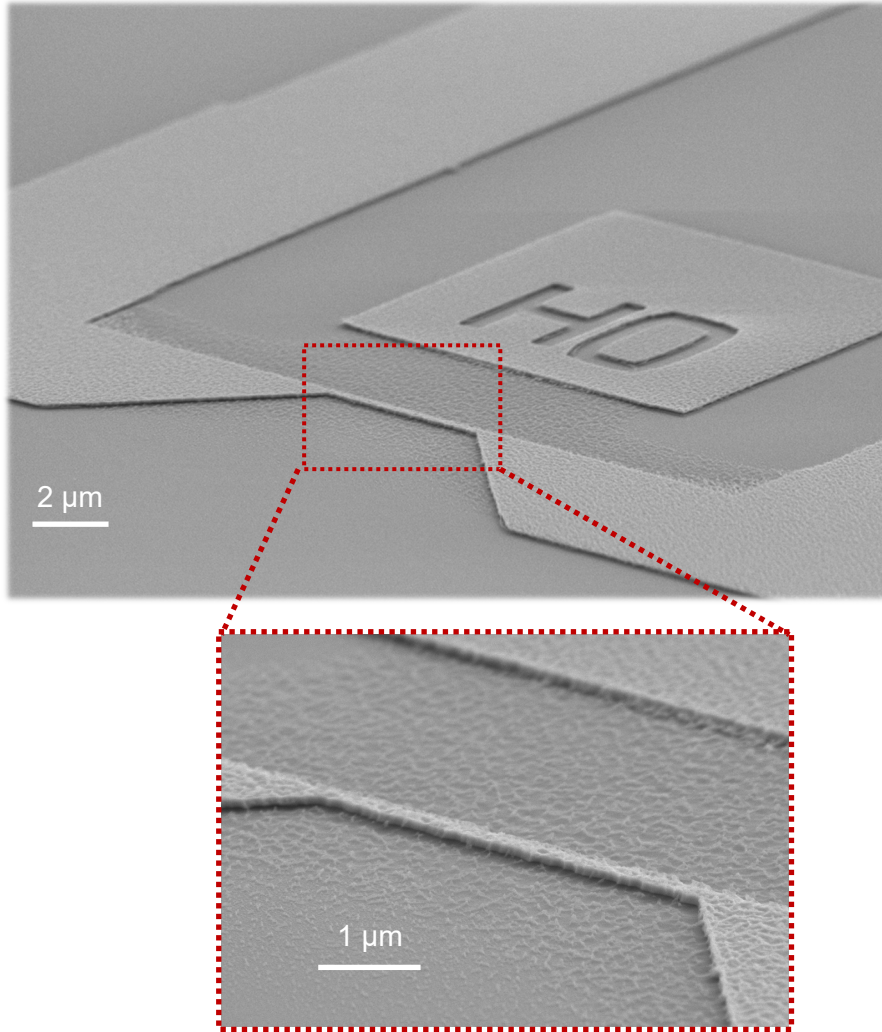
Sensori a stato solido
superconduttivi quantistici

Single Microwave Photon Counter



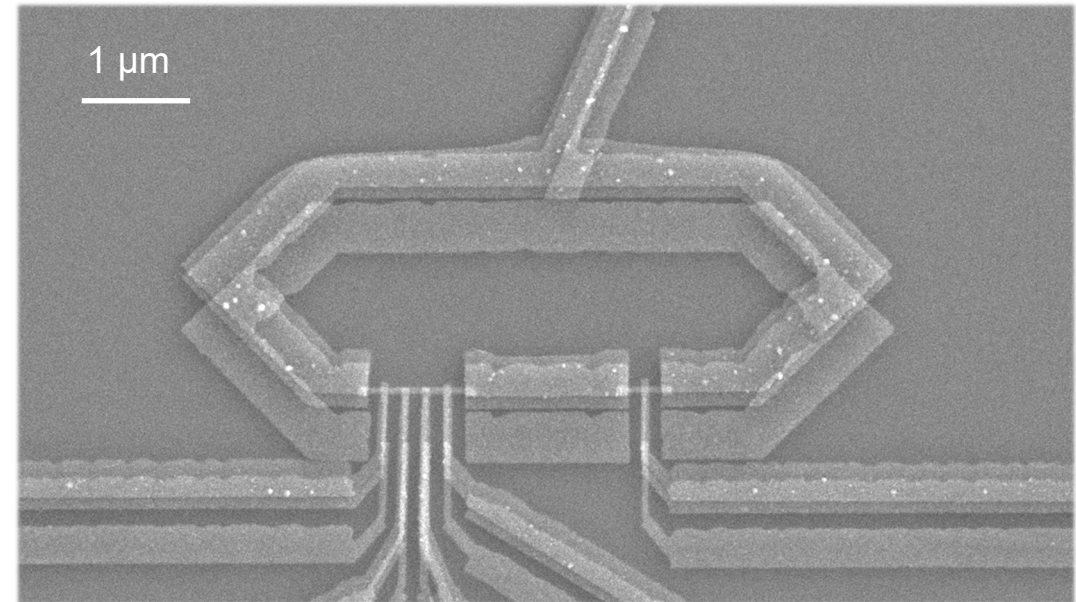


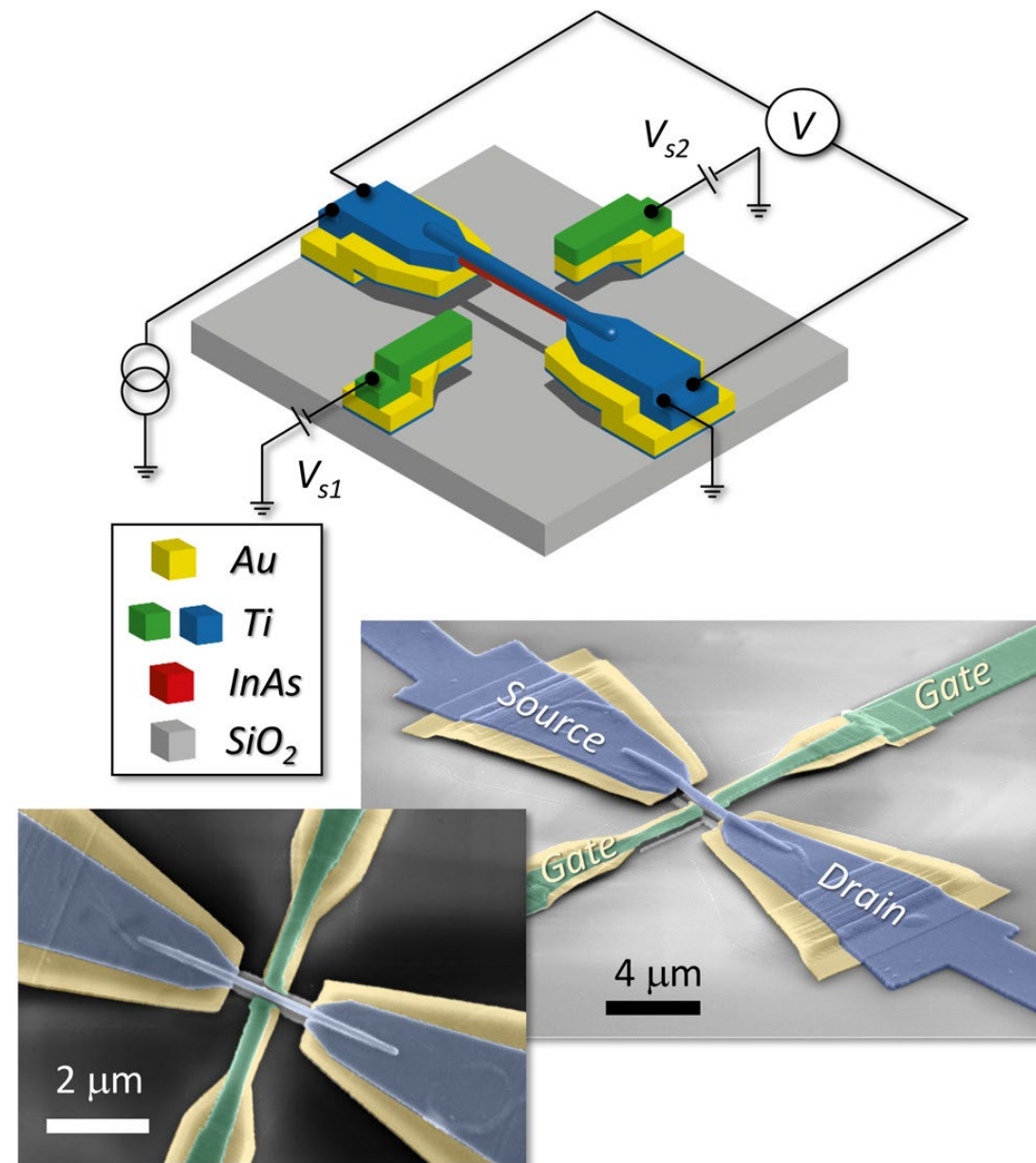
Strutture planari con dimensione critica < 100 nm

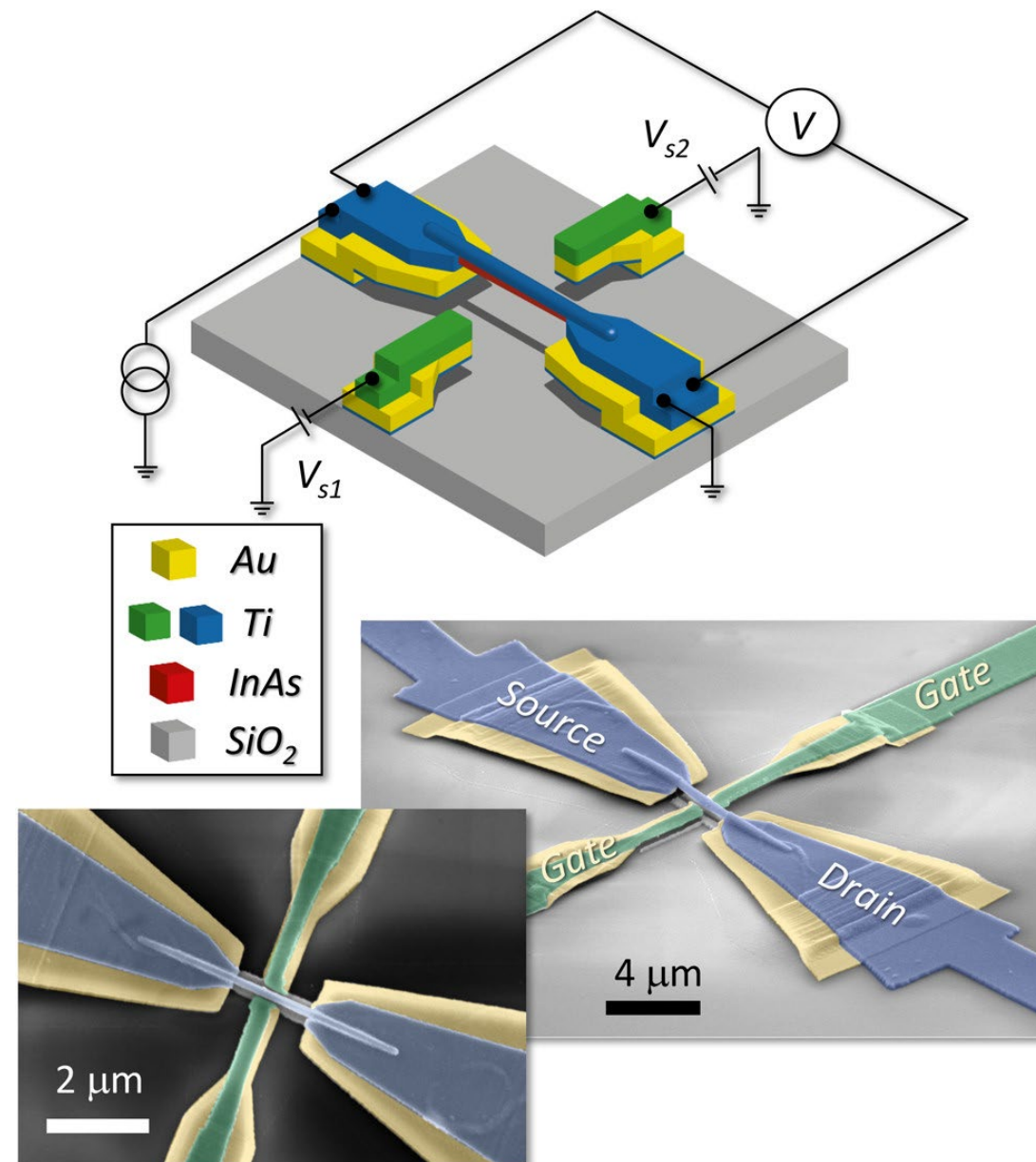
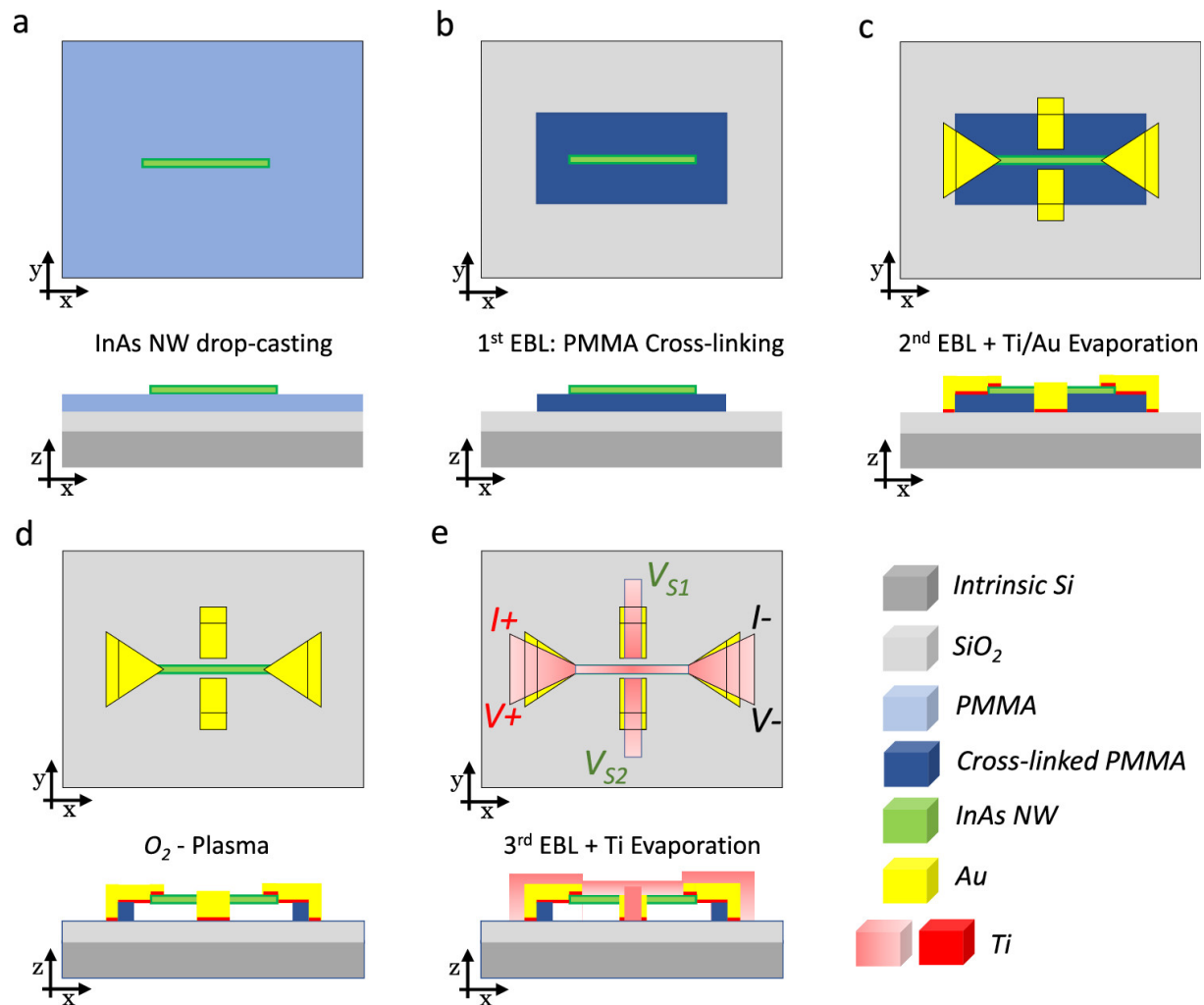


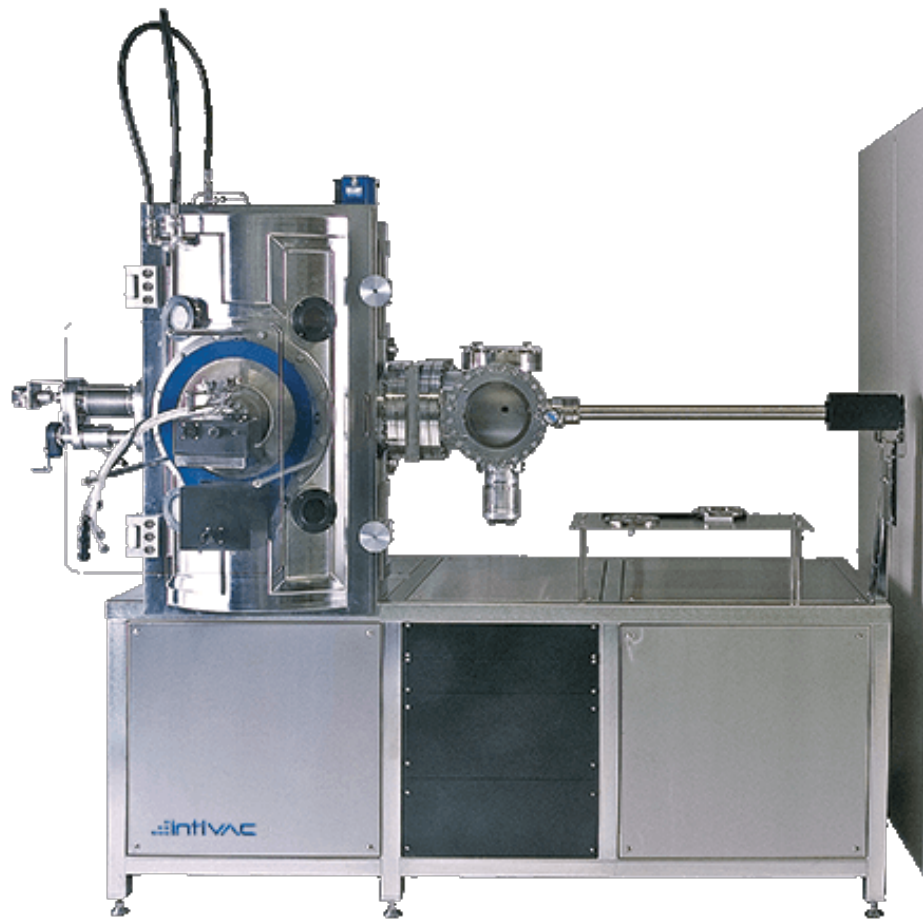
Strutture planari con dimensione critica < 100 nm

Shadow Mask Evaporation per Superconducting
Quantum Interference Devices



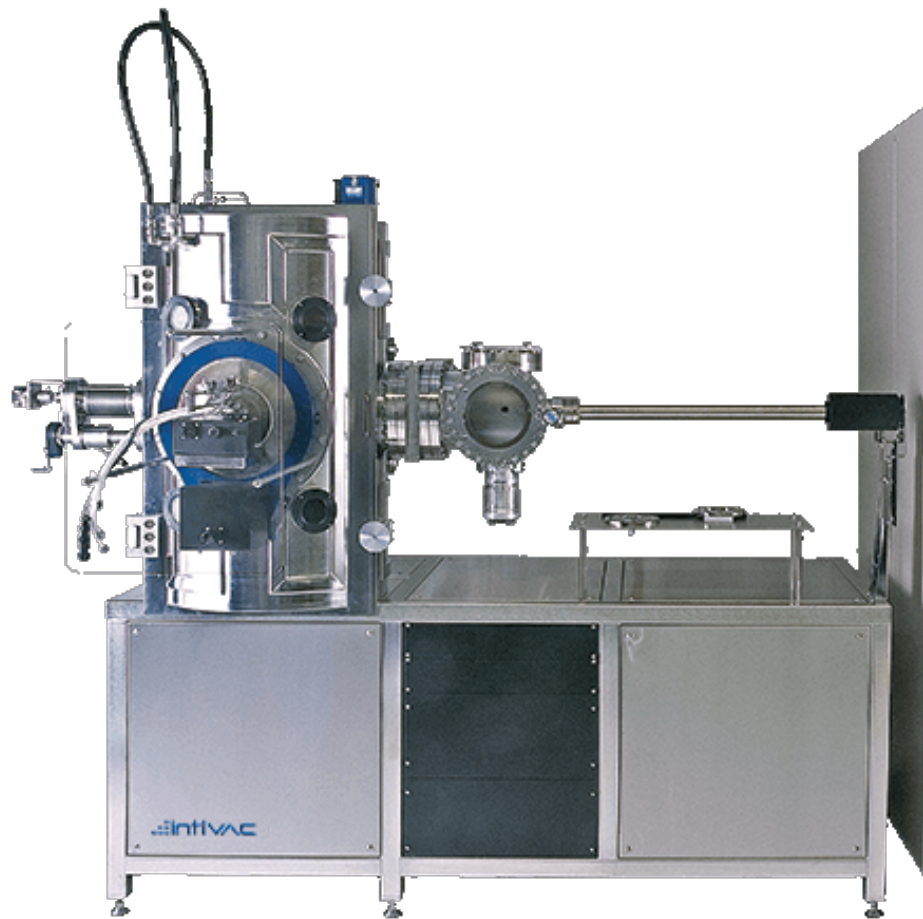






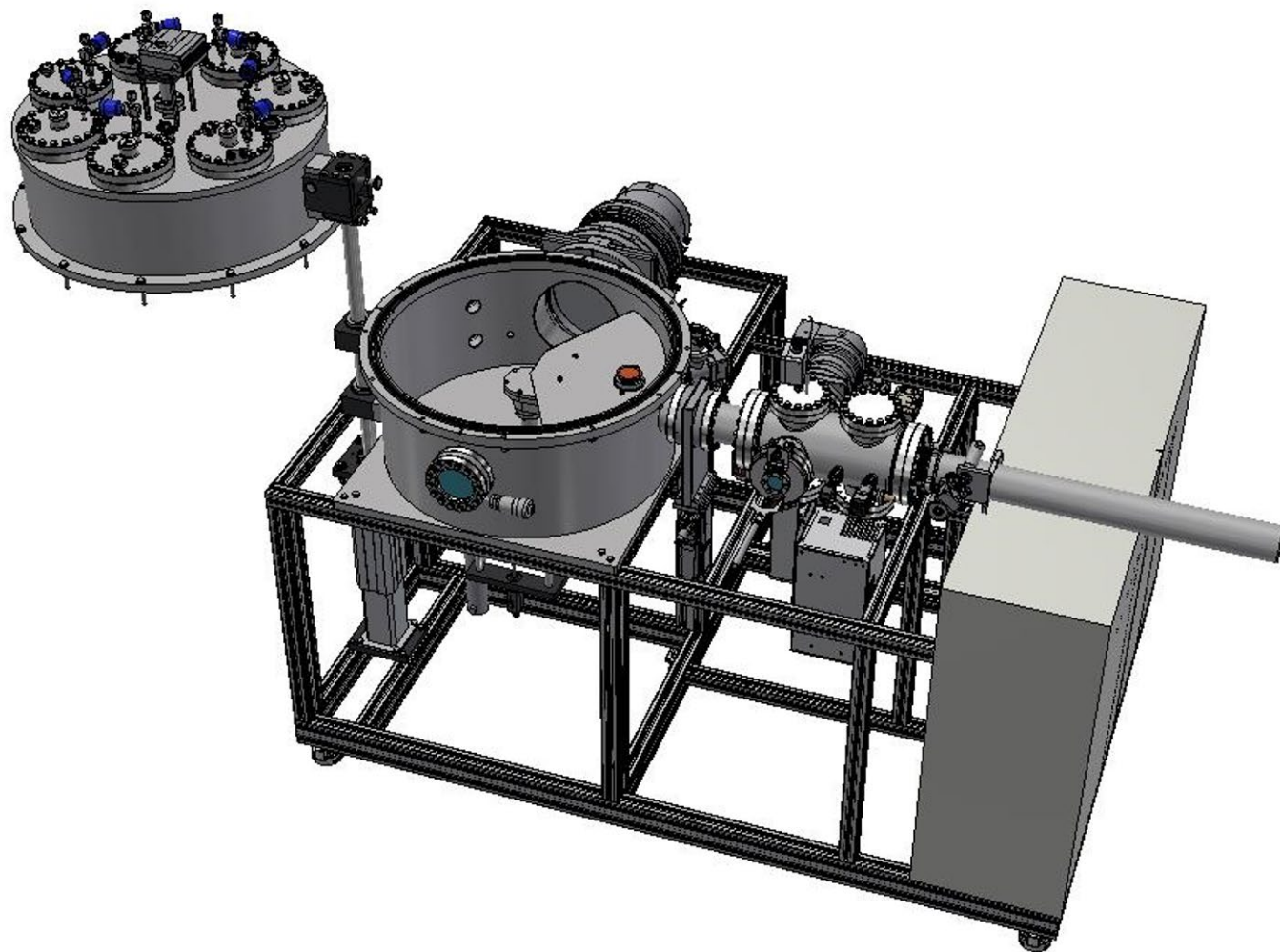
Gestione di in evaporatore e-beam

$P < 5 \times 10^{-11}$ Torr



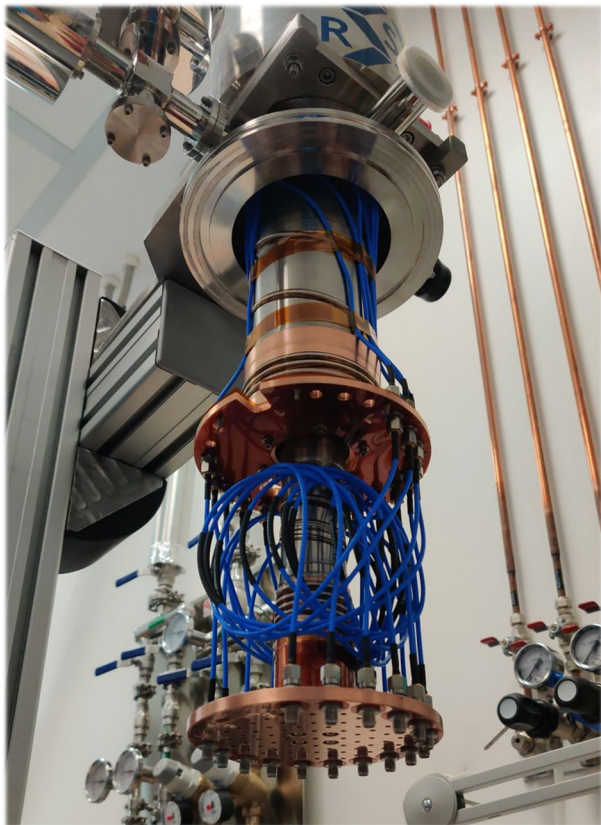
Gestione di in evaporatore e-beam

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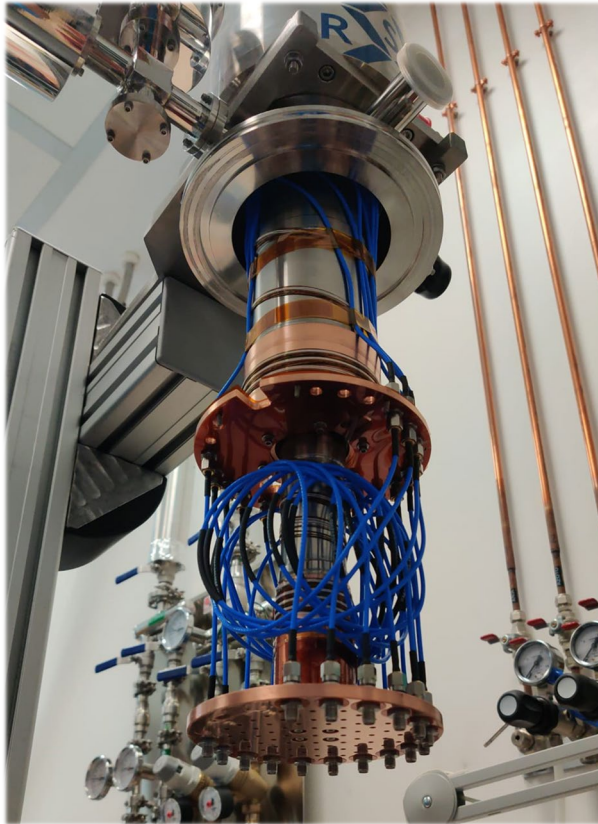


Sistema deposizione sputtering ~ 400 k€

Gifford McMahon 2.5 K



Gifford McMahon 2.5 K



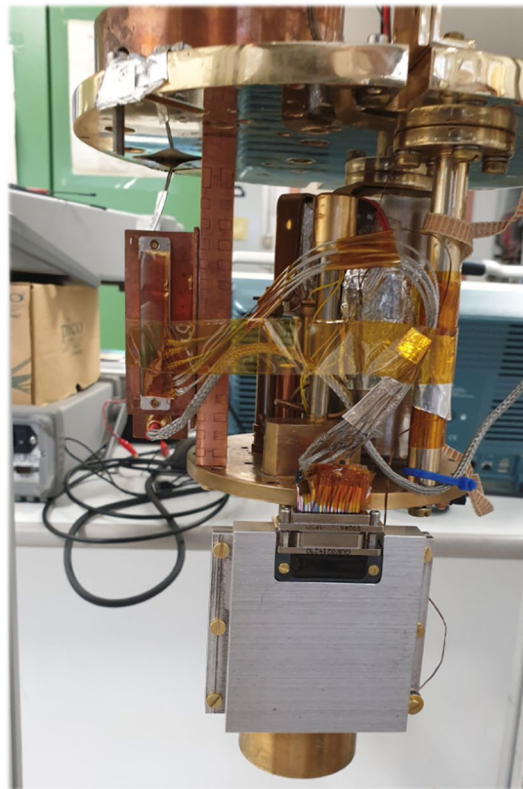
Diluizione 10 mK

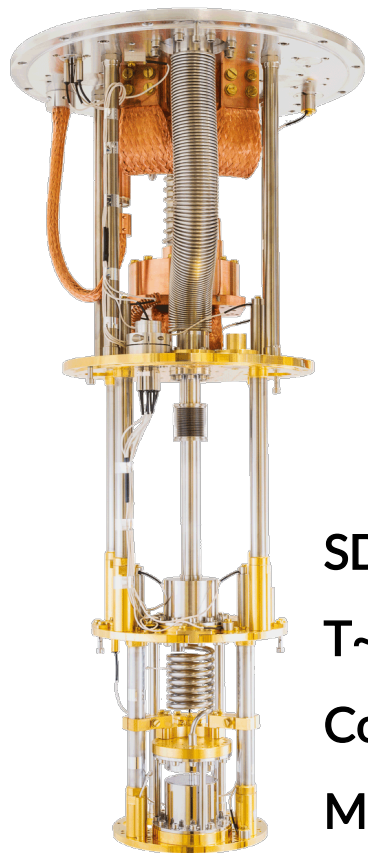


Custom 300 mK

T~ 280 mK

Cooldown < 24 h



BLUEFORS

SD250

 $T \sim 10 \text{ mK}$

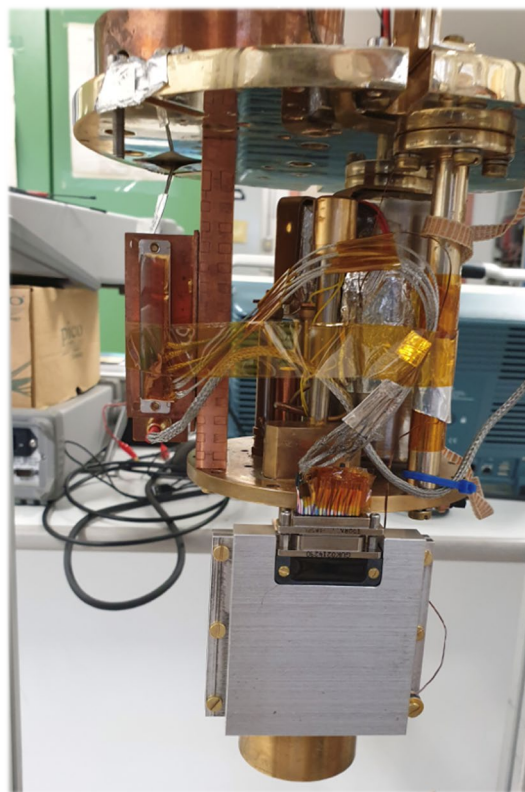
Cooldown < 24 h

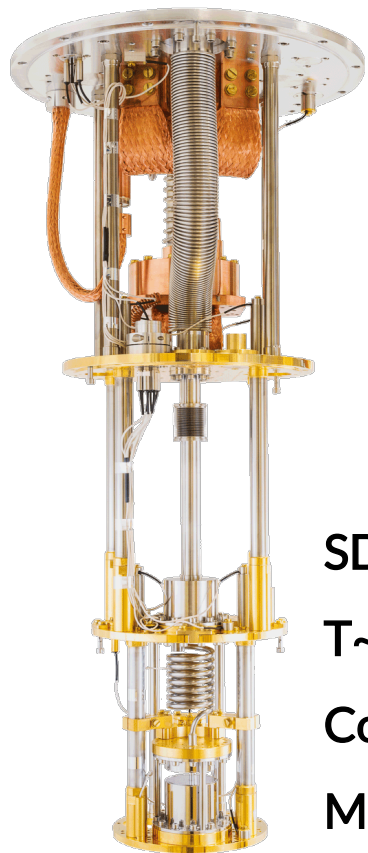
Marzo 2024

Custom 300 mK

 $T \sim 280 \text{ mK}$

Cooldown < 24 h



BLUEFORS

SD250

 $T \sim 10 \text{ mK}$

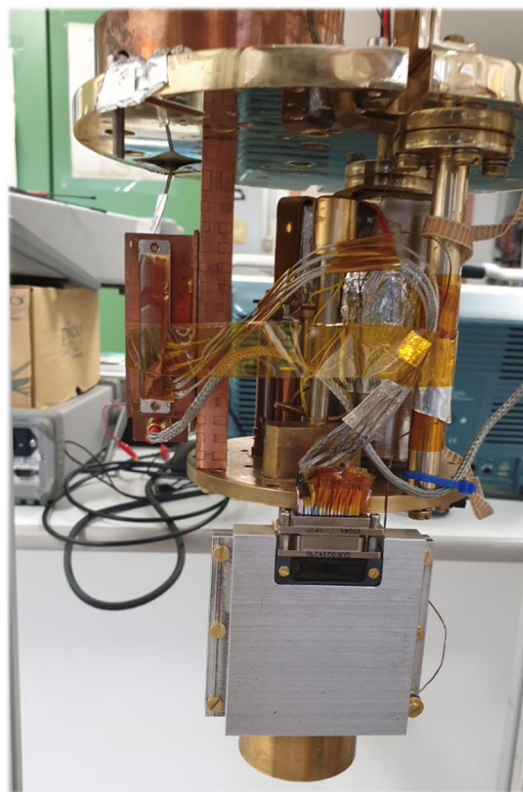
Cooldown < 24 h

Marzo 2024

Custom 300 mK

 $T \sim 280 \text{ mK}$

Cooldown < 24 h

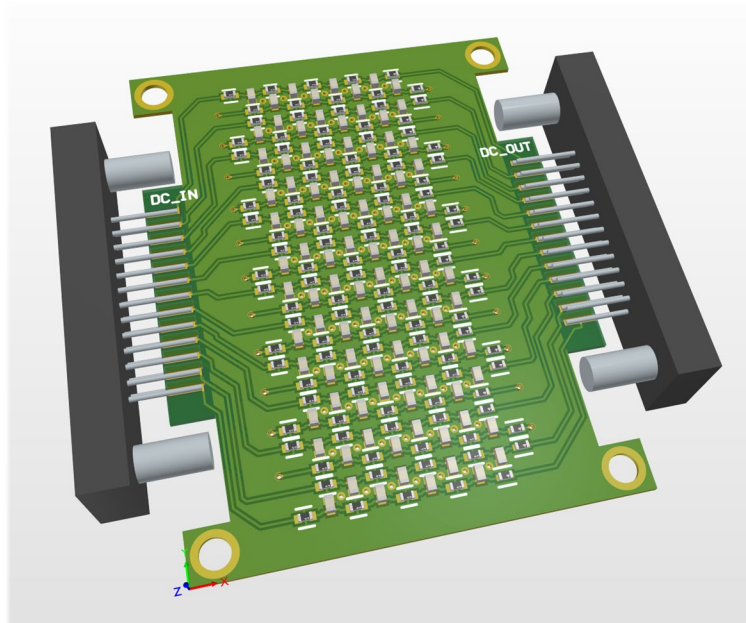
 $T \sim 10 \text{ mK}$

Cooldown < 72 h

Campo magnetico 6-1-1

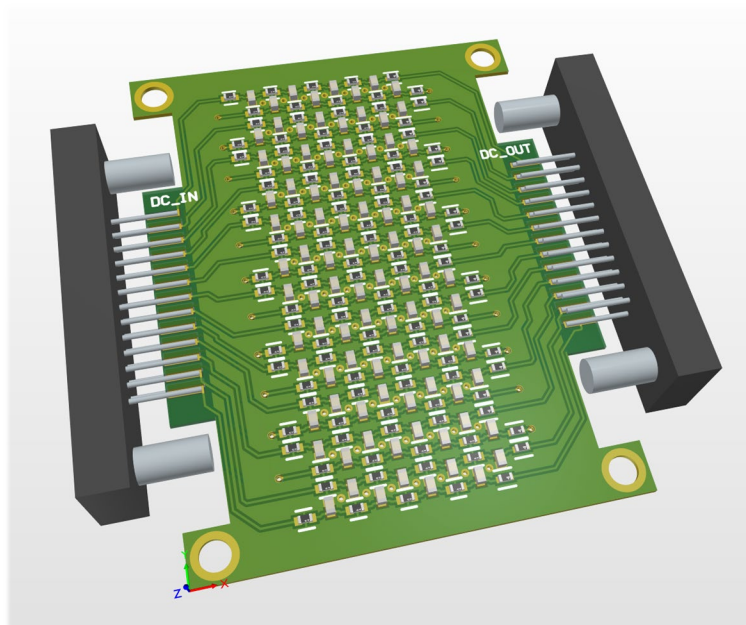
Agosto 2024

COMING SOON

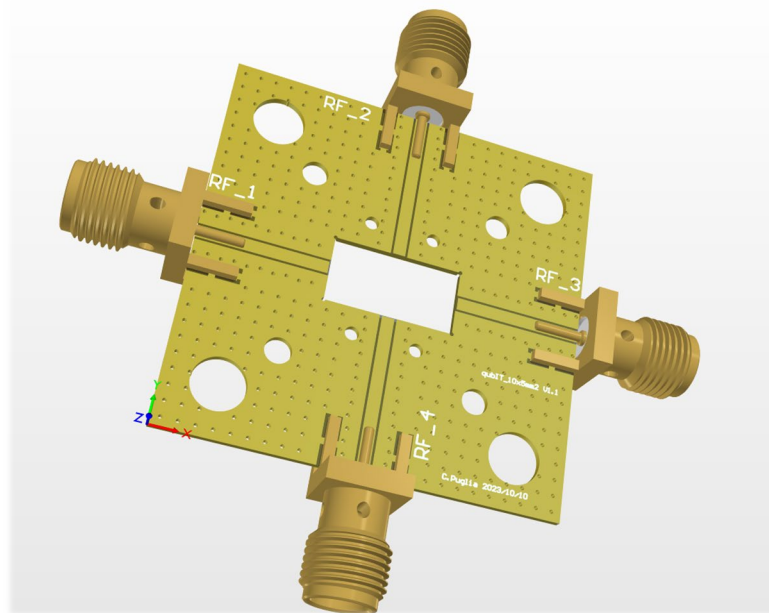


PCB per filtraggio a freddo

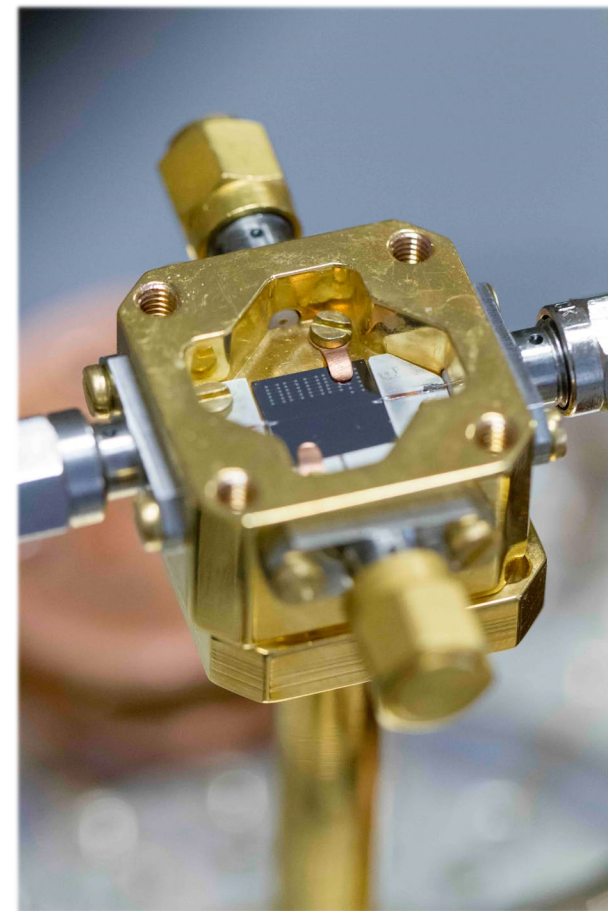
24x linee DC fino a 1 kHz



PCB per filtraggio a freddo
24x linee DC fino a 1 kHz



PCB Radiofrequenza V1.0
4x linee fino a 10 GHz



Custom Faraday Cage

Thank you for your time.