Design, fabrication and operation of Josephson parametric amplifiers

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The FBK team

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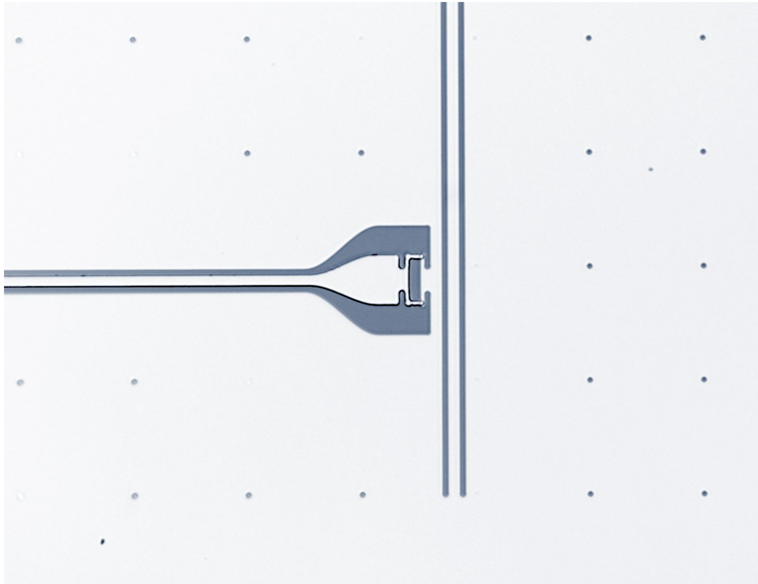
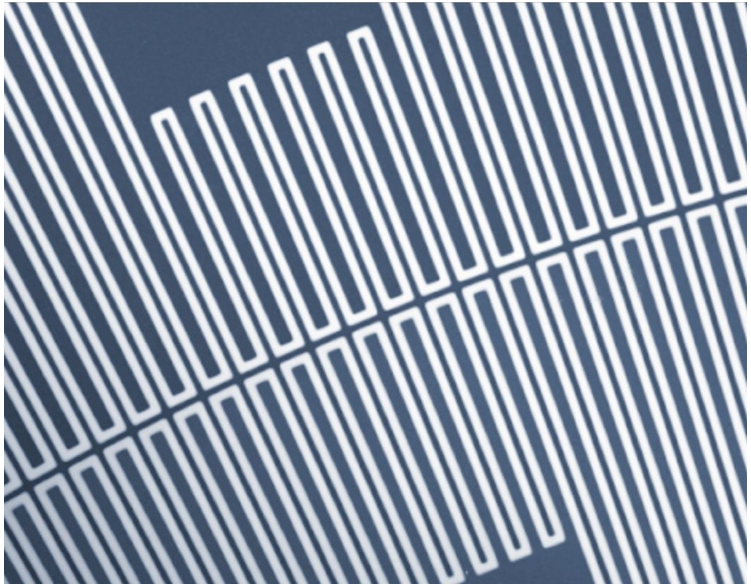
Other collaborators in Trento
Experimentalists: Paolo Falferi, Renato Mezzena, Andrea Vinante
Theoreticians: Iacopo Carusotto, Gianluca Rastelli, Stephanie Matern

Technology

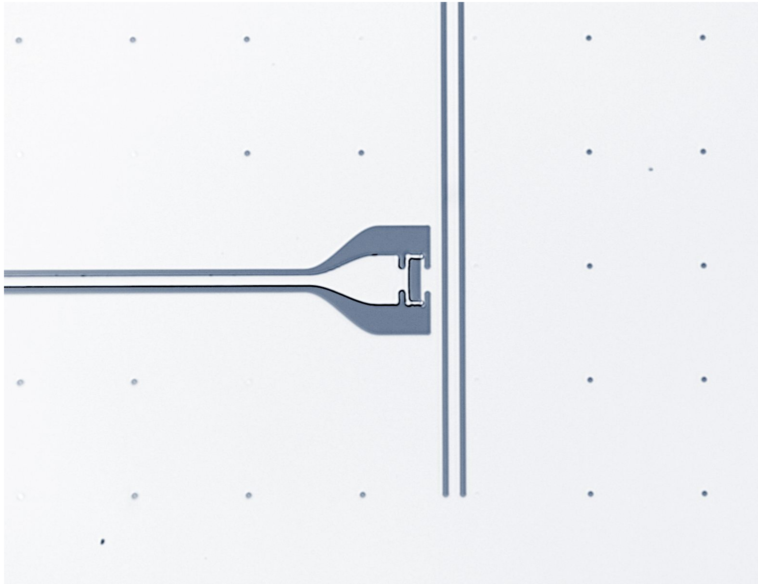


Josephson junctions



Kinetic inductance

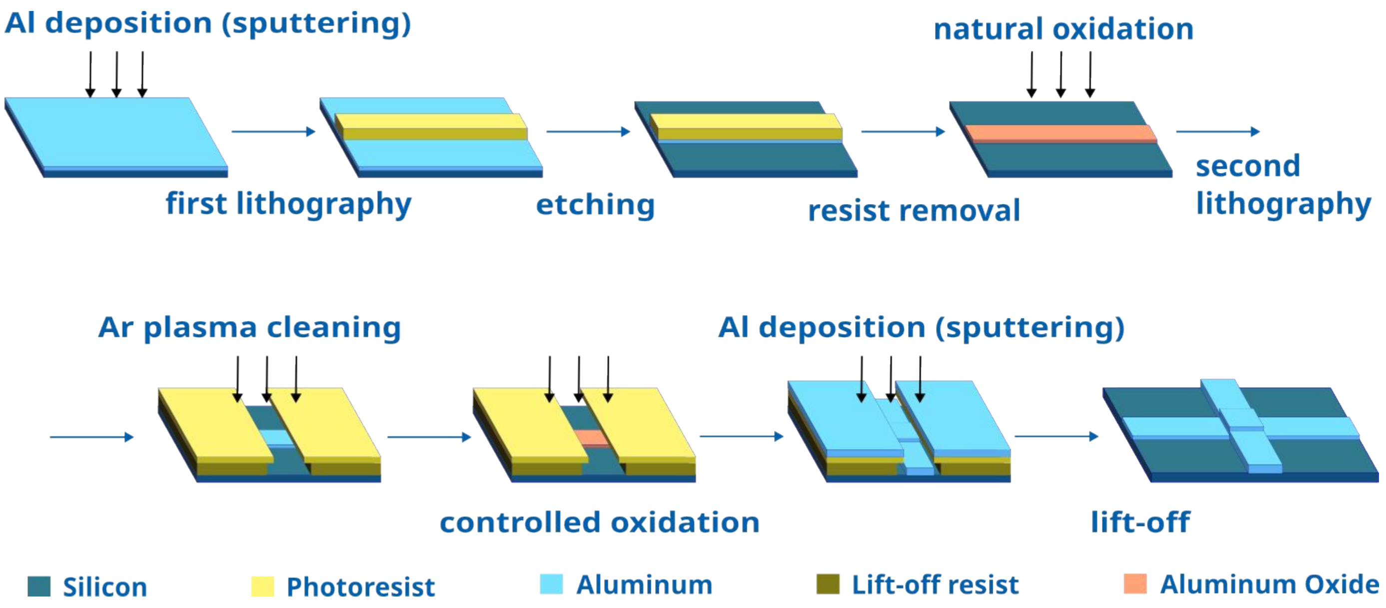
Technology



Josephson junctions

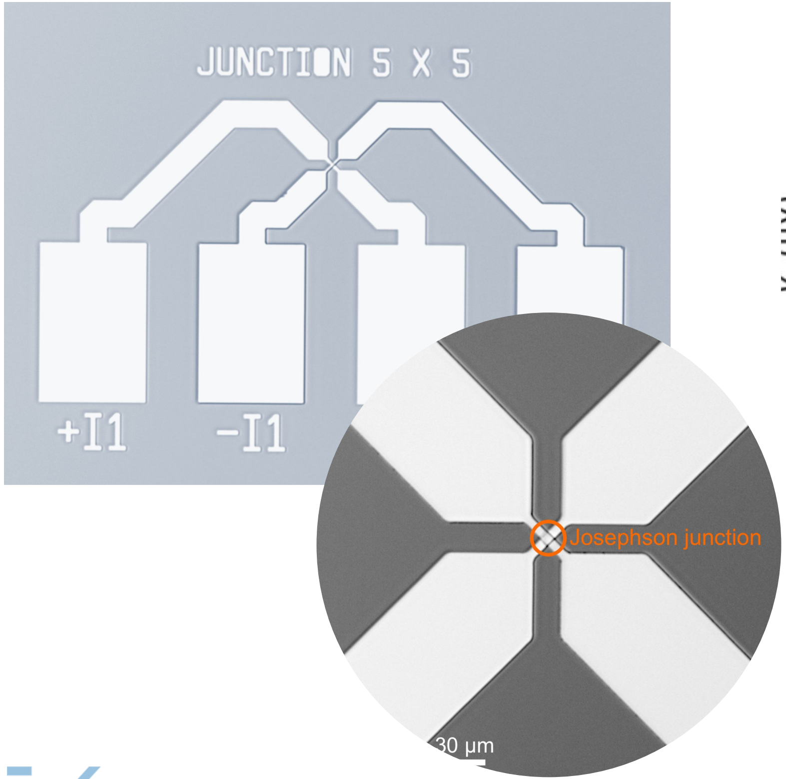
Kinetic inductance

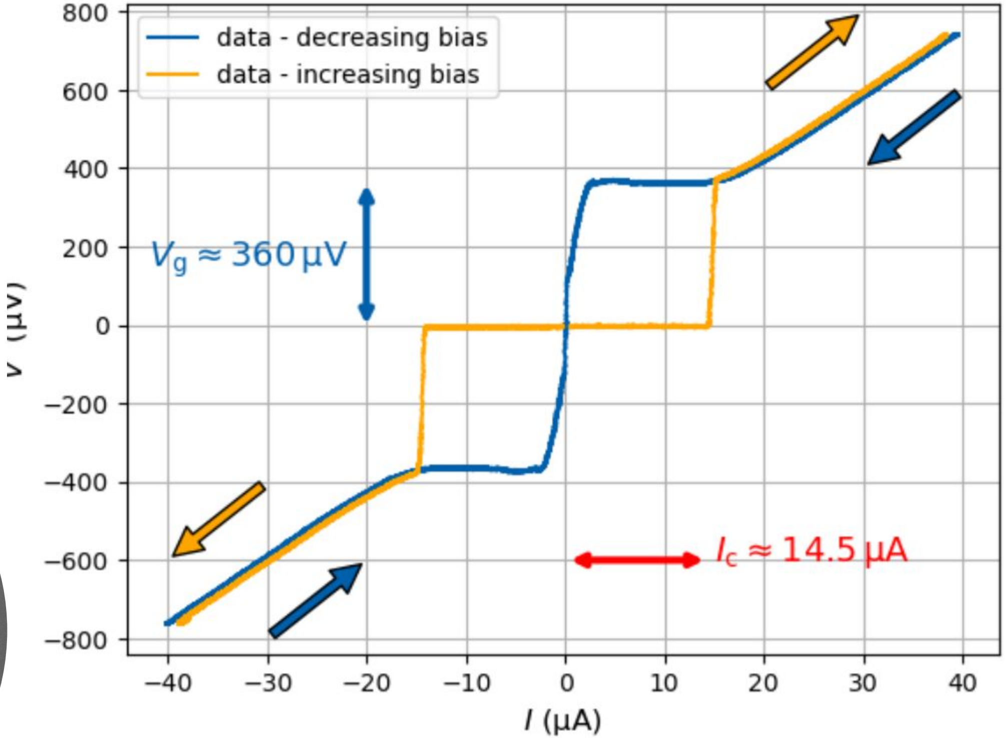
Fabrication process



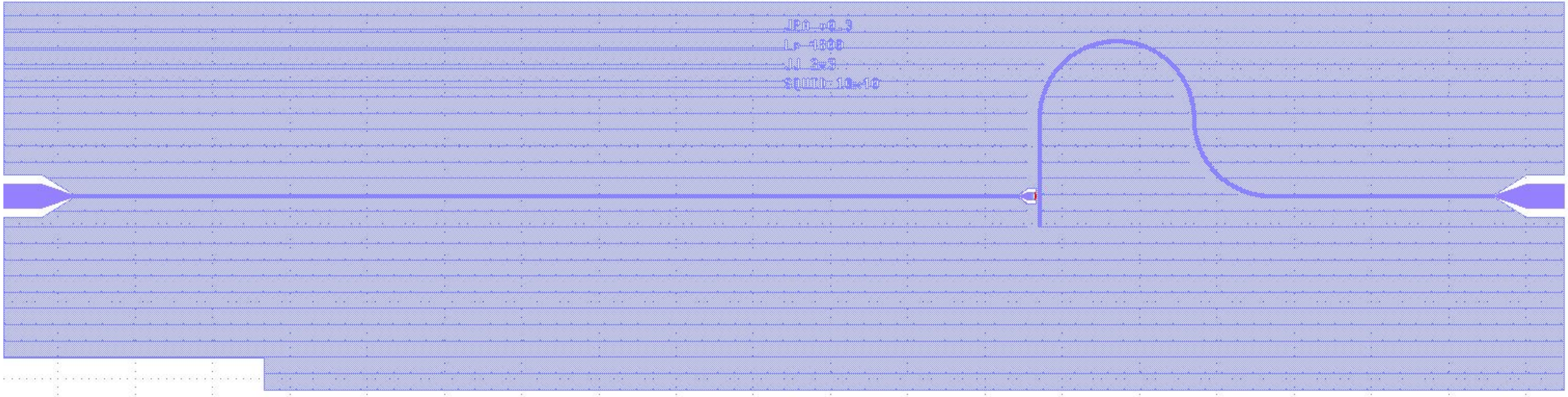
See also Bal et al.
https://arxiv.org/abs/2005.10908

Single junctions

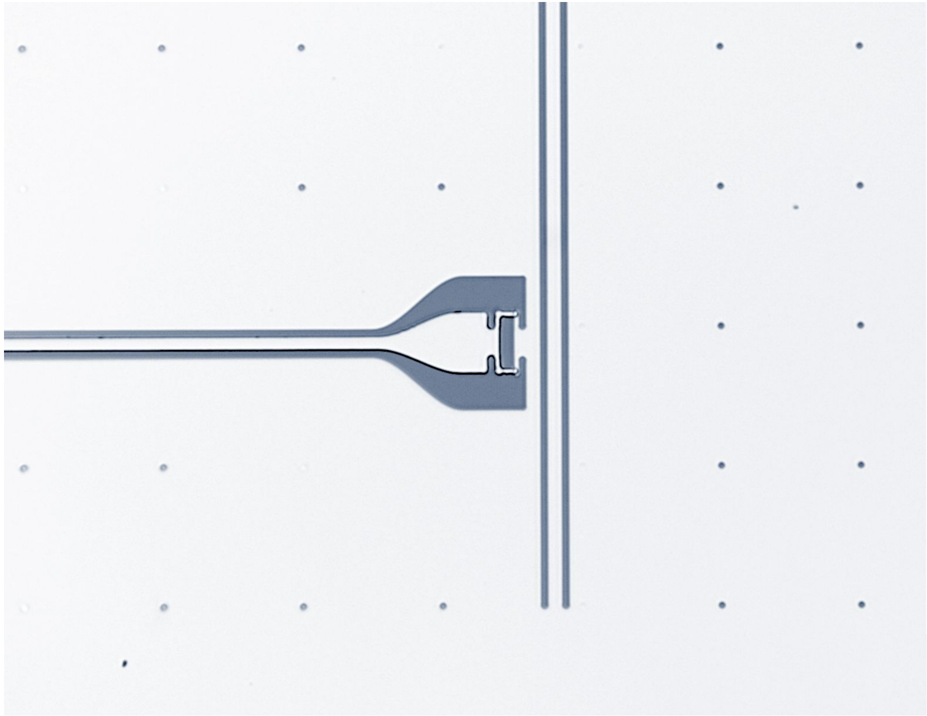


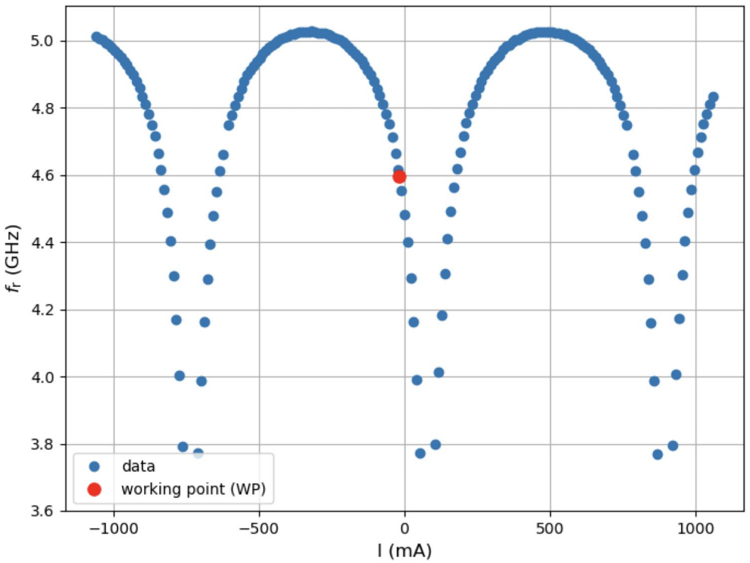


Josephson parametric amplifier



Josephson parametric amplifier

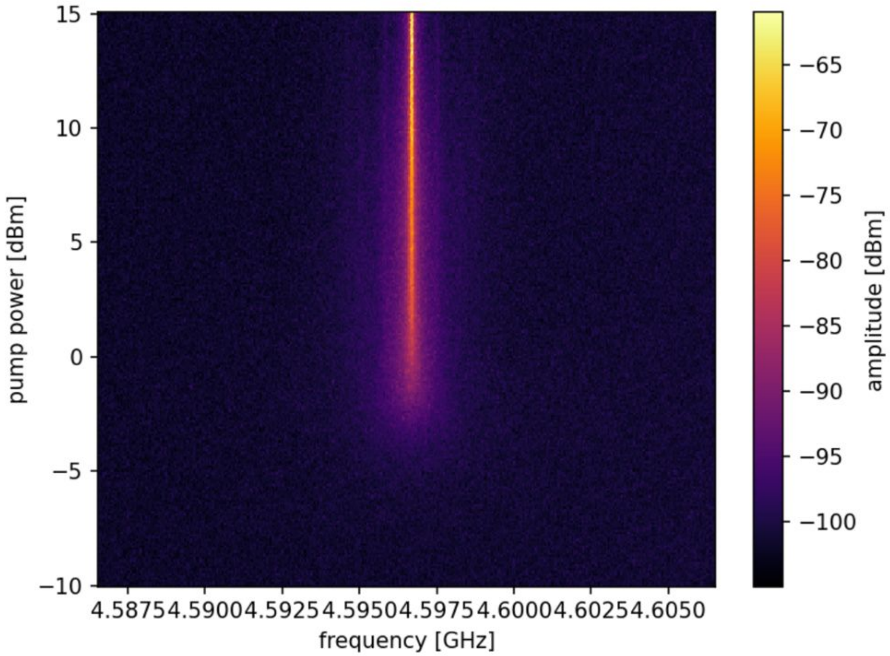




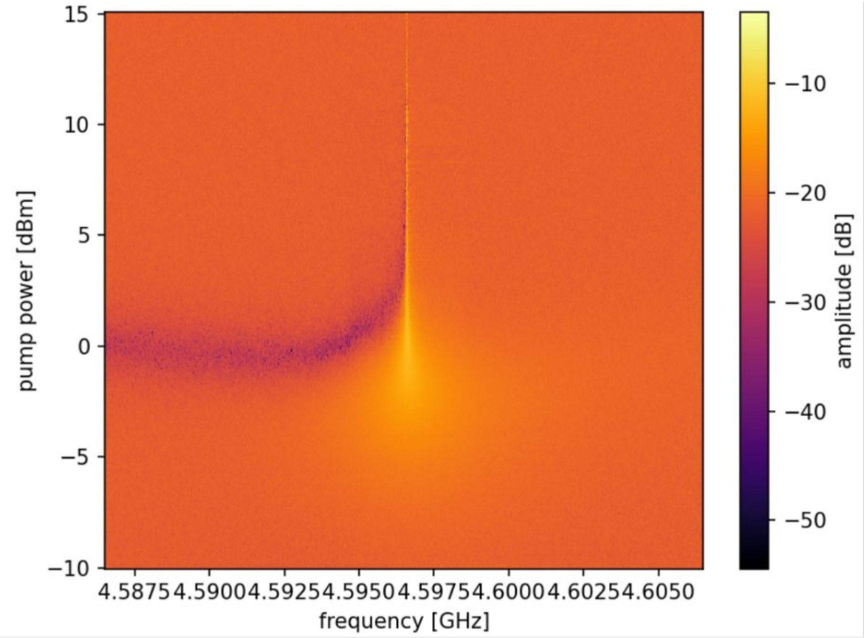
Fun ways to use a JPA:
https://arxiv.org/abs/2409.00760
talk by Felix Ahrens

Josephson parametric amplifier

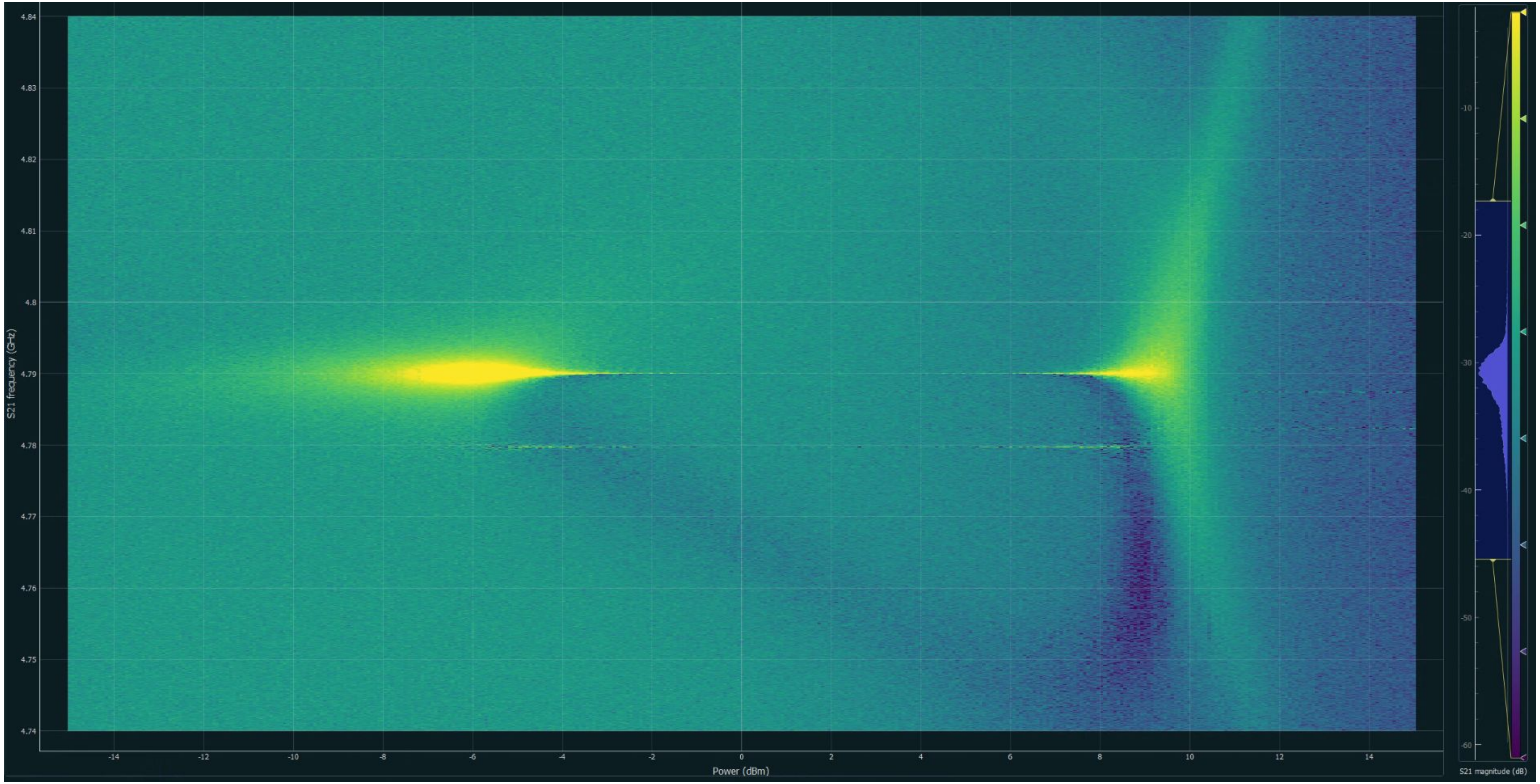
PSD



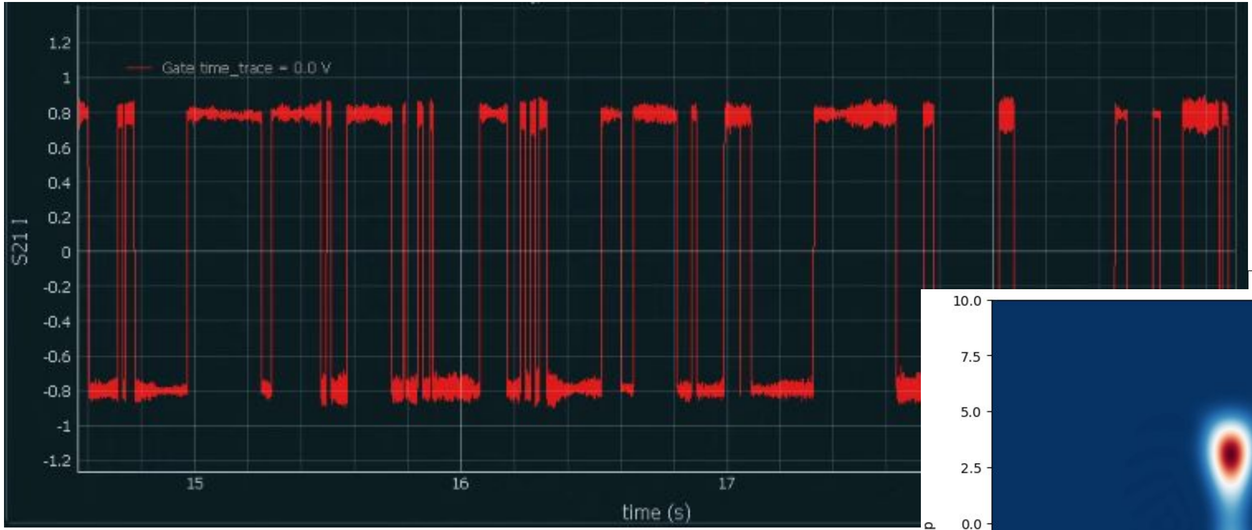
S21

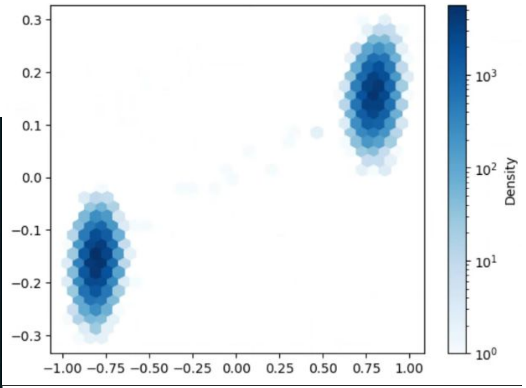


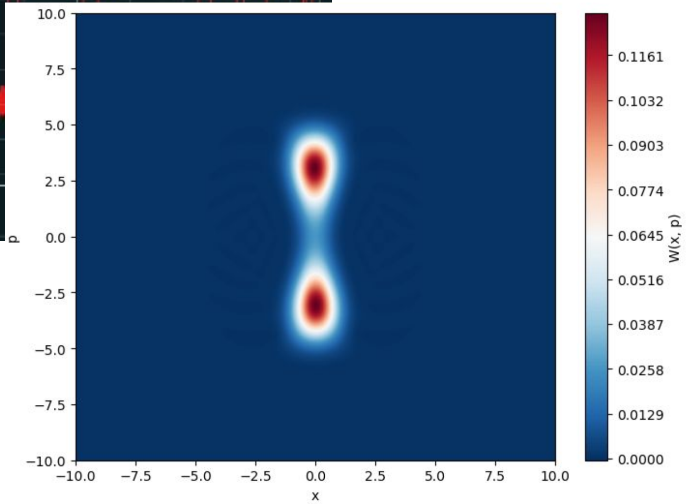
Josephson parametric amplifier



Josephson parametric amplifier







Thank you

FONDAZIONE
BRUNO KESSLER

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ON KNOWLEDGE