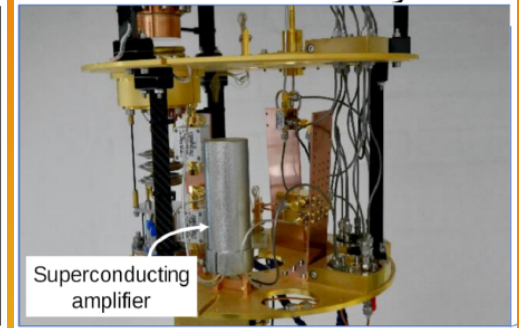




# Quantum Sensors for the Hidden Sector



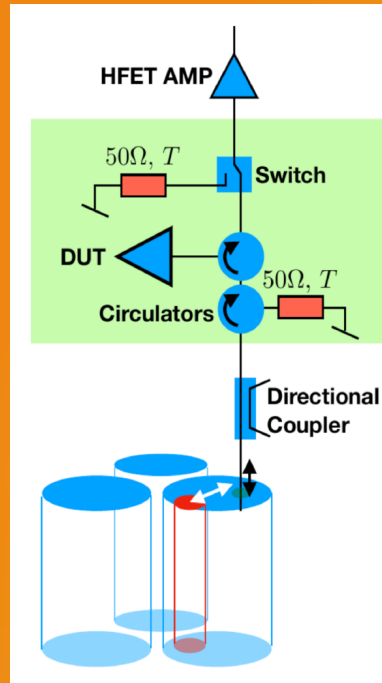
I. Bailey on behalf of the QSHS collaboration



- Funded by UKRI to develop quantum electronics for hidden-sector particle detection.
- Exemplar is a microwave axion haloscope
  - Operating at frequencies  $> 5$  GHz with mK noise temperatures
- Developing
  - Incoherent electronics (bolometers)
  - Coherent electronics (TWPA, SLUG-loaded waveguides,...)
  - Qubit devices

# ...not just electronics

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poster 56!



- Constructing an 8T, 10mK test facility at the University of Sheffield
- Collaborating with ADMX on experimental designs
- Investigating HSP theory and phenomenology
  - Axion cosmology
  - ALP phenomenology
  - Dark photon stars

Currently advertising for a research associate in superconducting quantum amplifiers at Lancaster University.

