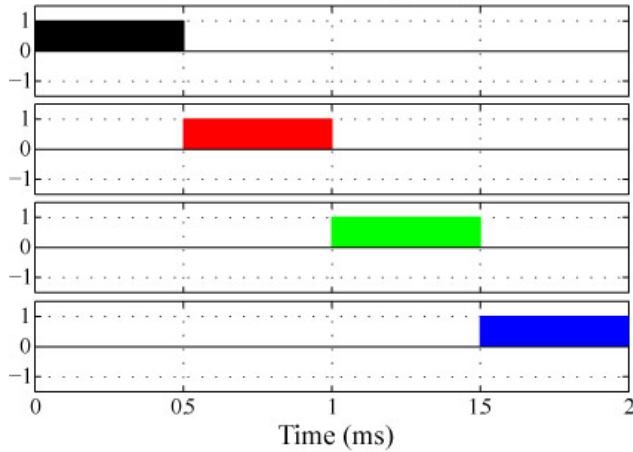
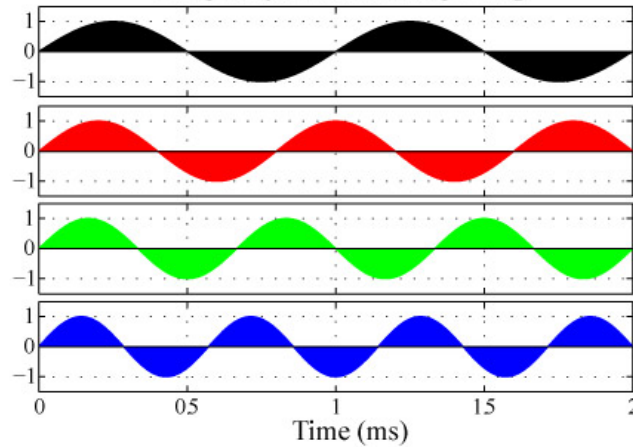


Time-division MUX



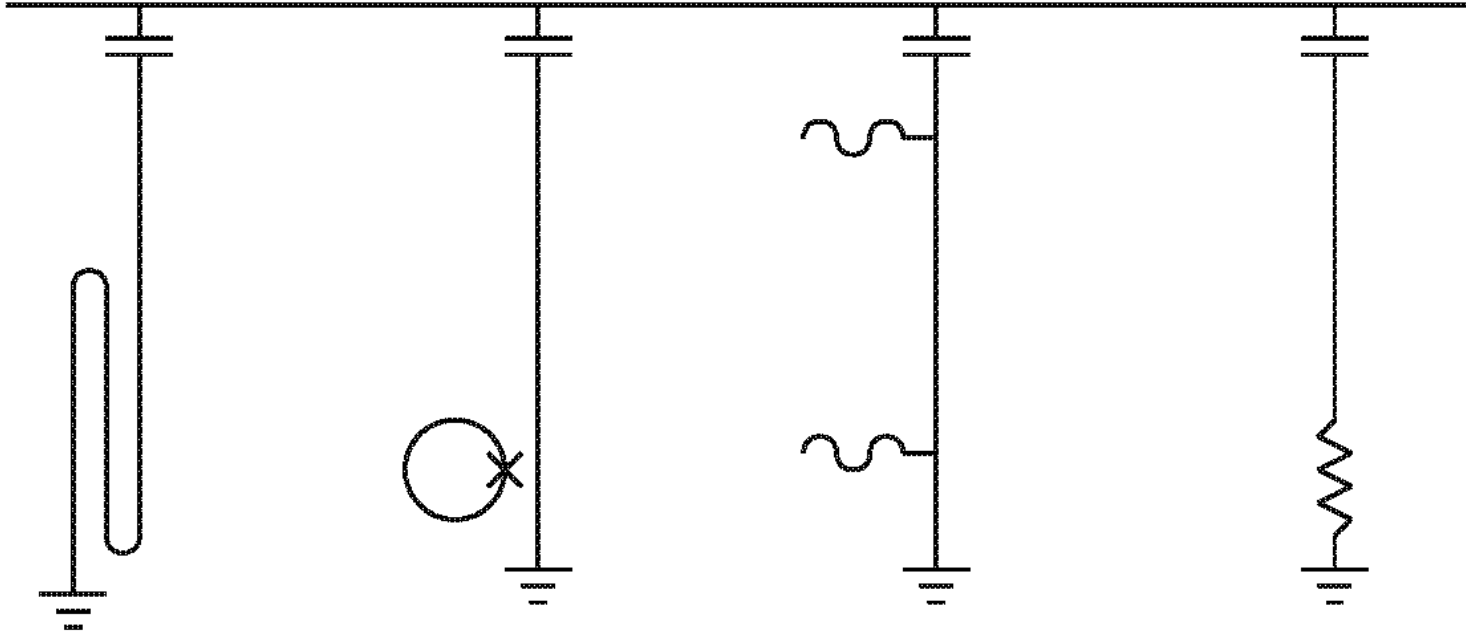
Define time band by
turning on SQUIDs
sequentially
DC-biased TESs

Frequency-division MUX



Define frequency bands
with passive resonator
circuits
AC or DC-biased TESs

Four approaches to microwave resonator readout



MKID

- Direct photon absorption
- Variable Q and f

Microwave SQUID

- TES
- Current modulates inductance of Josephson Junction
- Variable f

KPUP

- TES
- Current modulates kinetic inductance of resonator
- Variable f

Direct TES readout

- TES
- Variable Q