On-wafer DfMUX

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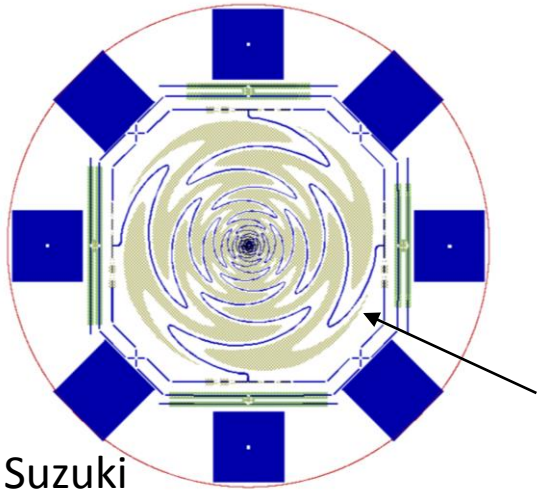
Advantages

- Relatively minor modification to an existing/proven system.
- Simple MUX structure (LC resonator) for focal plane integration.
- Current system already satisfies some of the requirements. (e.g., thermal loading on the focal plane)

Development need

- Simplification of interconnect: current system requires bonding ~N_{TES}.
- High-frequency → Small feature size → integrated focal plane.
- High-quality high-frequency resonators development in progress.
- Need TES operation be confirmed, and low parasitic to be achieved. (10~20 MHz confirmed by Phil)

Possible arrangement for
a resonator-integrated pixel

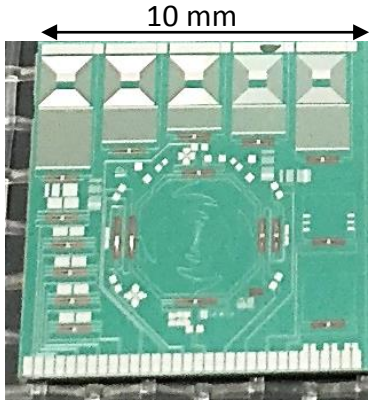


A. Suzuki

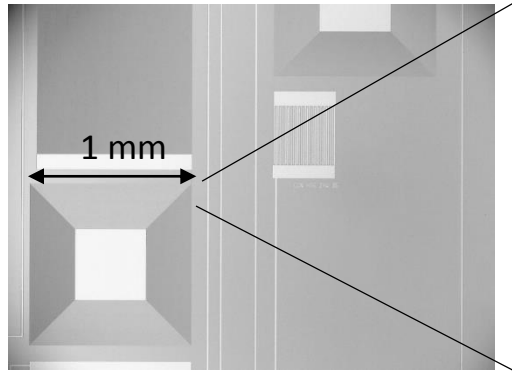
3 mm
sinuous
good down
to 70 GHz

Development / evaluation in progress for
high-frequency low-ESR LC resonators

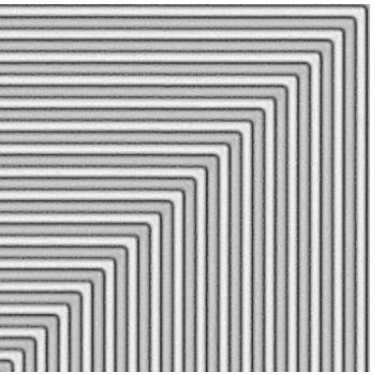
A. Suzuki



Proto-type detector-readout integrated chip



LC resonators on chip



2 um line, 2 um gap