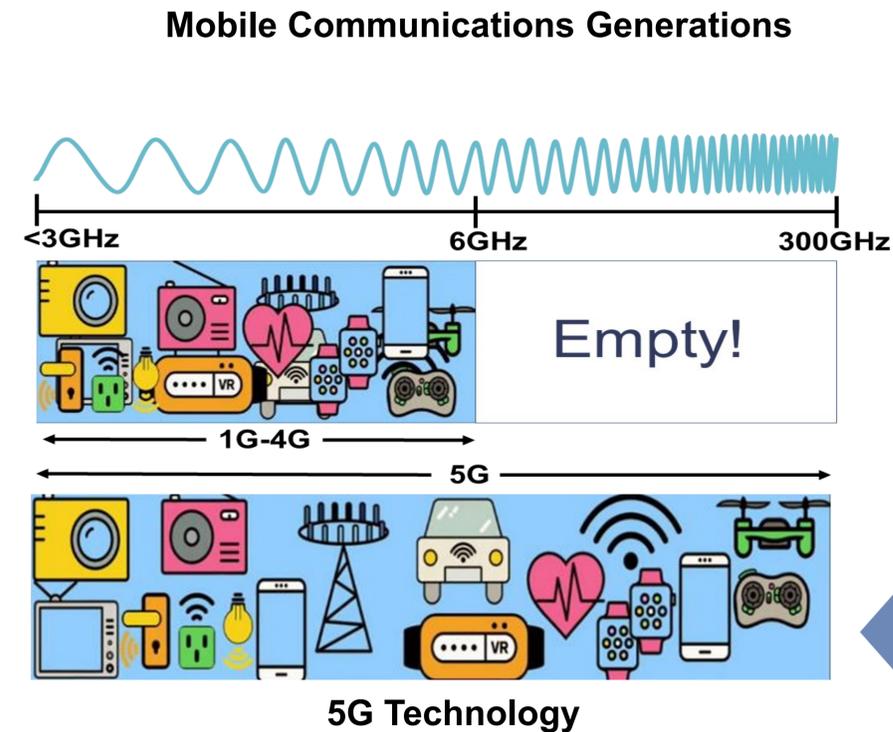
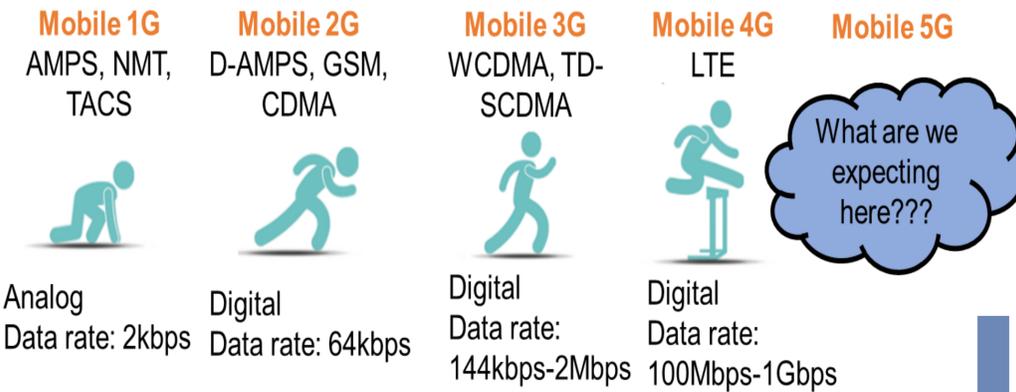
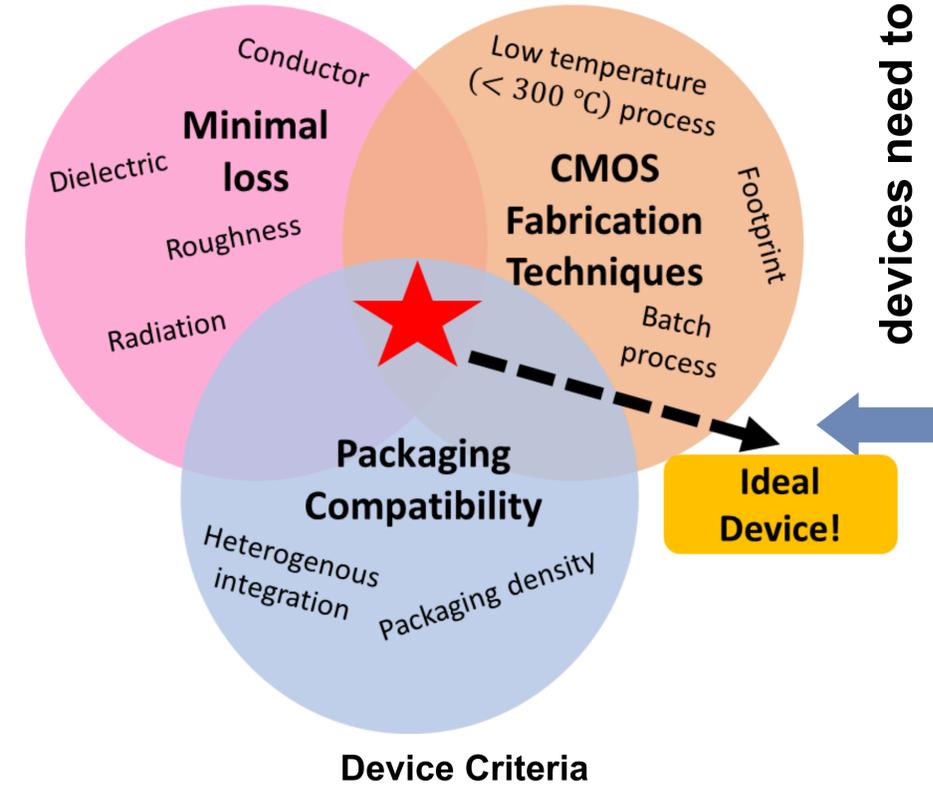
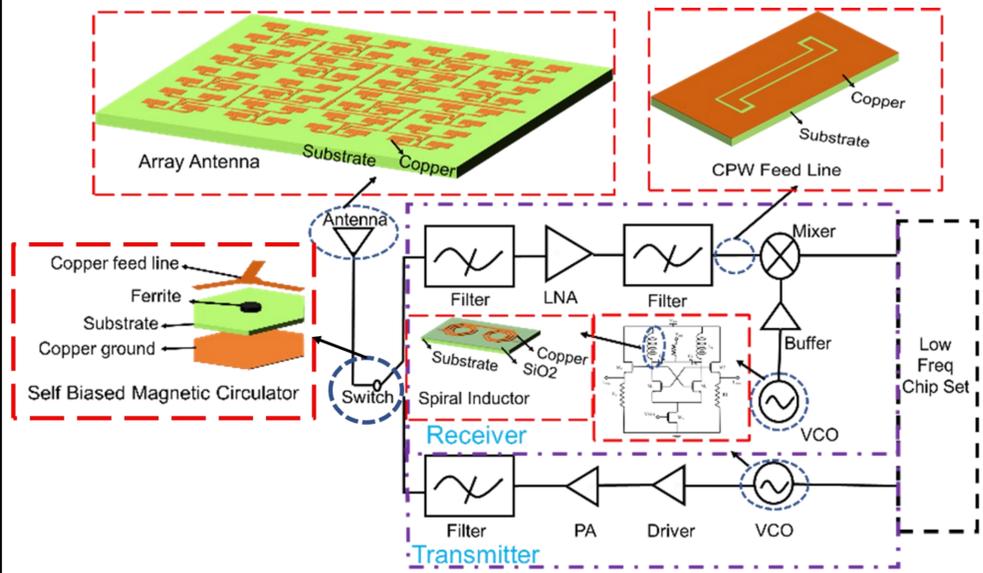


TECHNOLOGY TREND



- With 5G peak data rate of 20 Gbps
- mm wave frequencies i.e. 24-38 GHz and above 60 GHz along with sub 6 GHz for signal transmission and reception

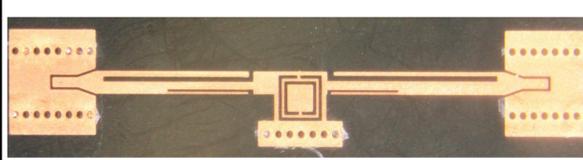
CHALLENGES



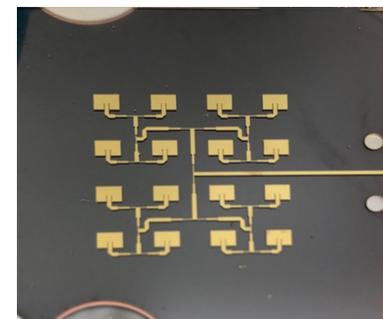
MY CONTRIBUTION

Designed, fabricated, and characterized substrate agnostic CMOS and packaging compatible passive devices.

Reciprocal Devices

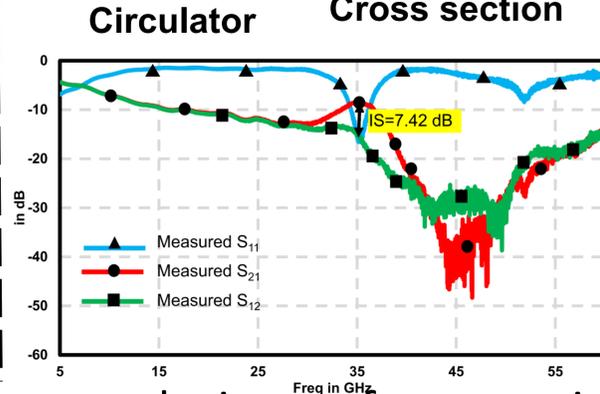
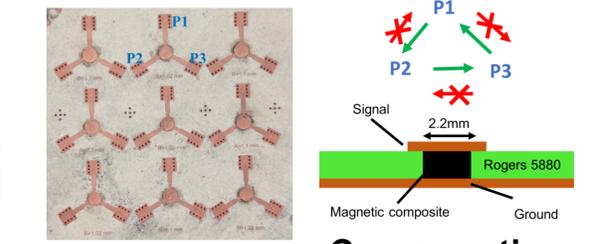


28 GHz Filter



28 GHz Array Antenna

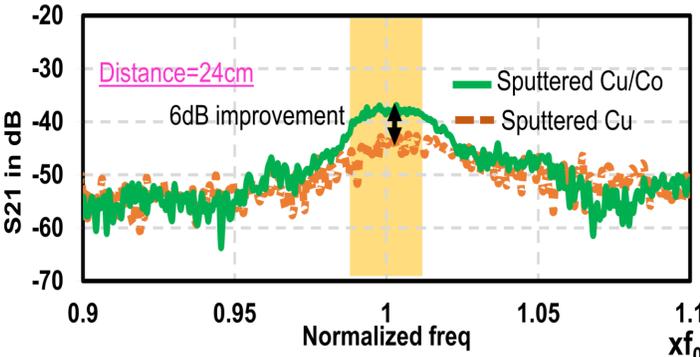
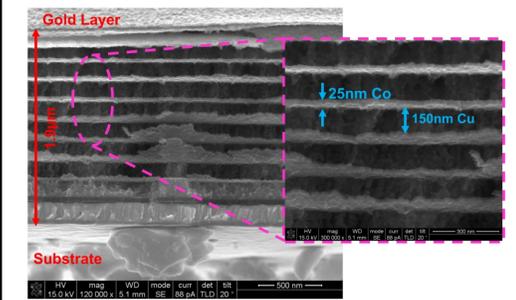
Non-Reciprocal Devices



- Effect of different loss factors on device performance is studied.

Low Loss Conductors using Nano Multilayers

- Max. resistance reduction of 32% with Cu/Fe (30-67 GHz) and 50% with Cu/Co (5-32 GHz) reported compared to Cu



FUTURE DIRECTIONS

- Tuning capabilities in Cu/Co and Cu/Fe using external magnetic field
- Implementation of RF front end passives and interconnects using low loss conductors
- Wide band tuning in nonreciprocal devices using ferroelectric films such as BST

BUT.....