

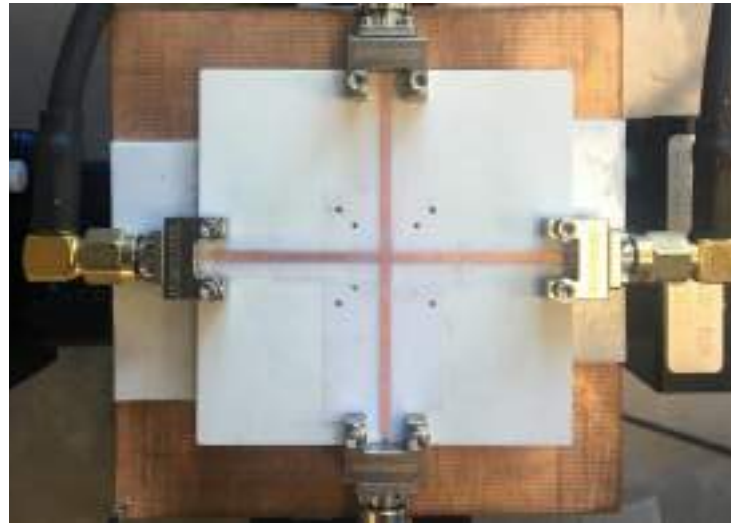
# Level attraction in Metamaterials

Yutong Zhao

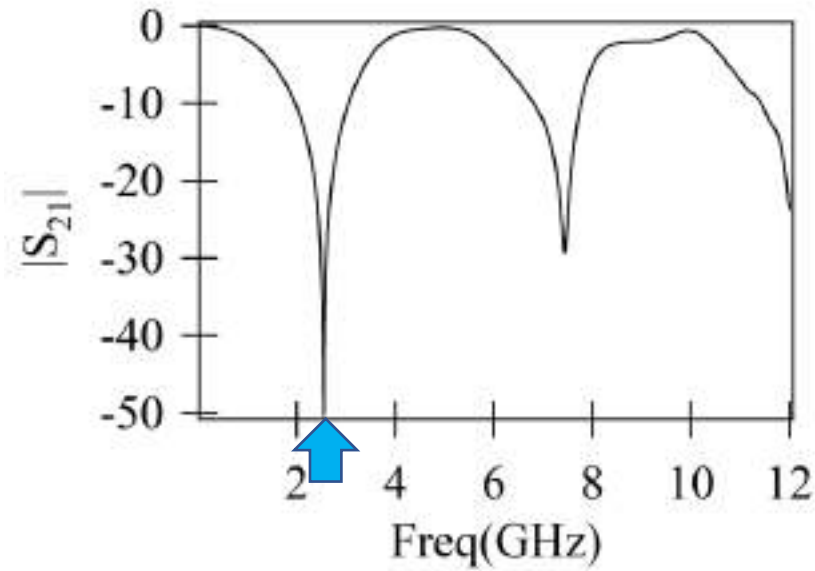
Feb 25<sup>th</sup> 2019

# Experiment results

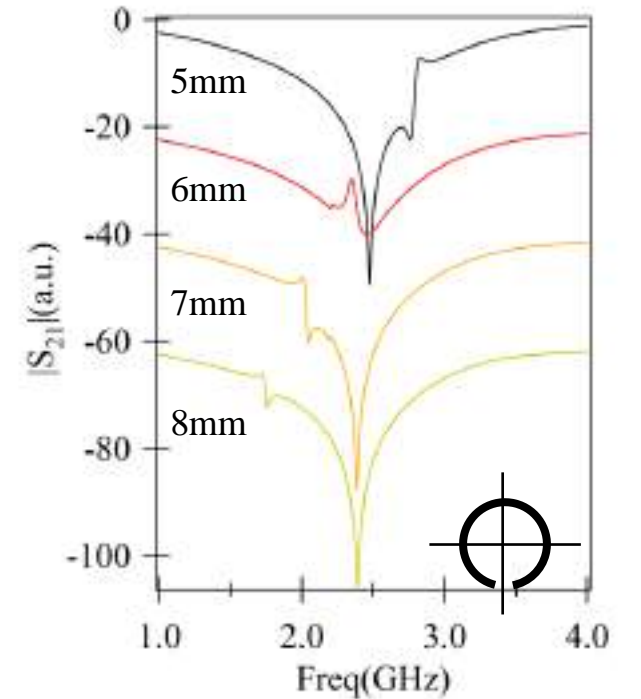
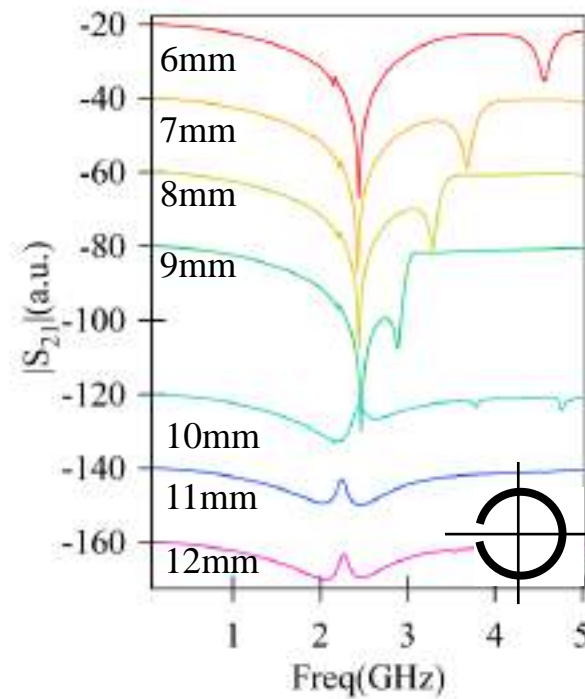
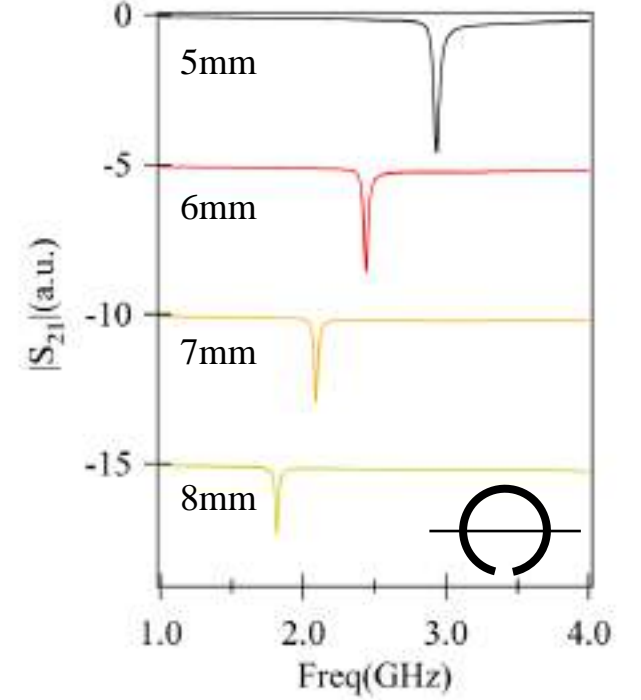
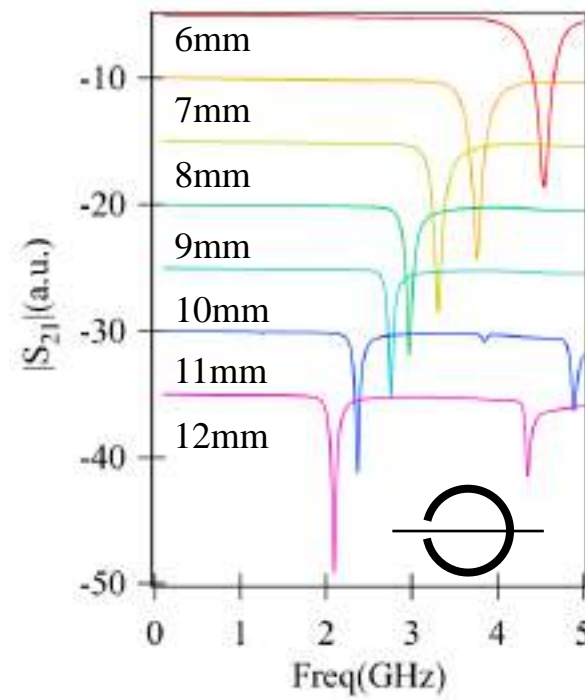
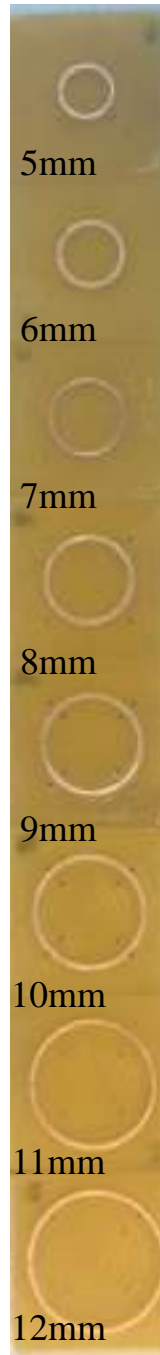
port1



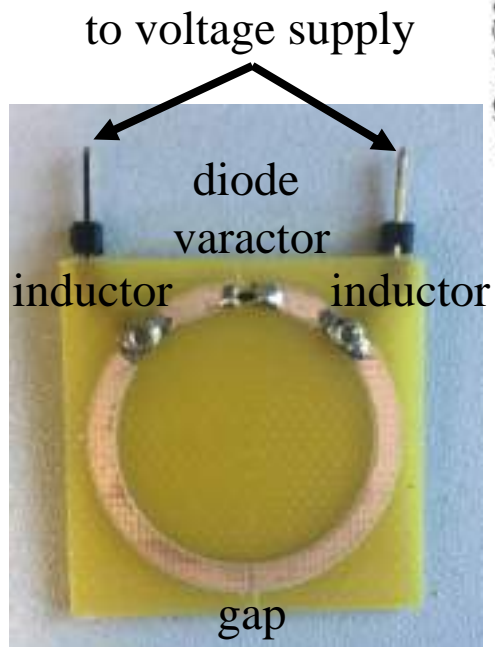
port2



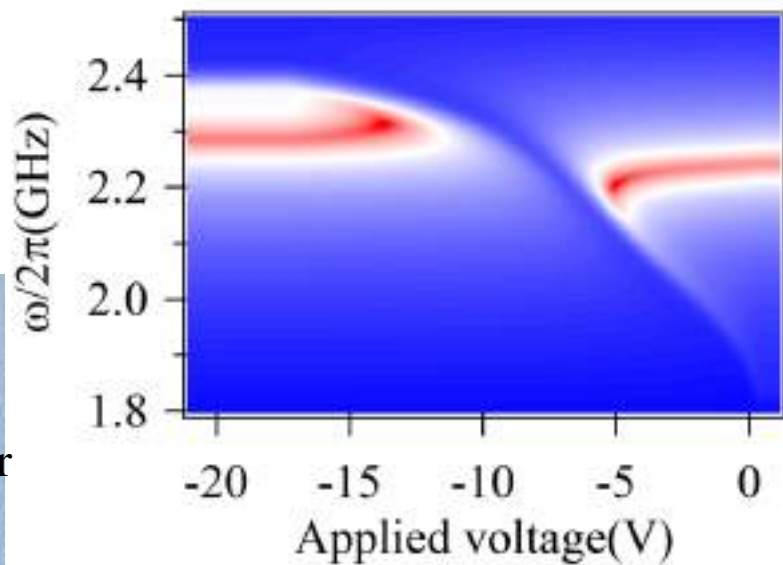
## SRRs



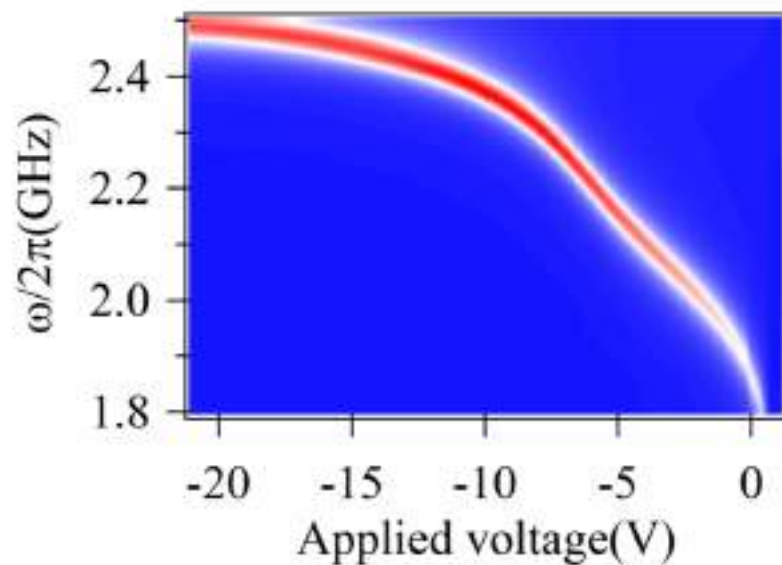
## Experiment results(2)



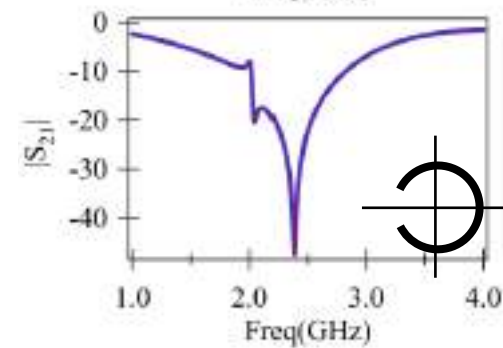
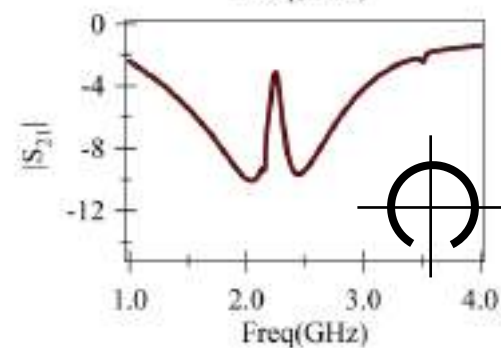
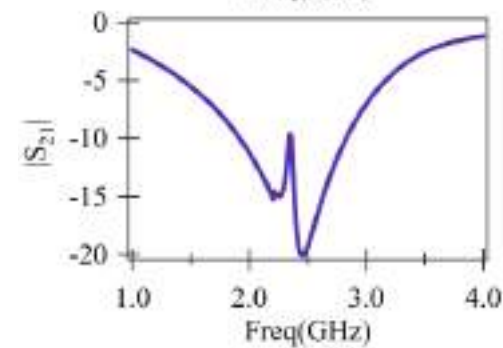
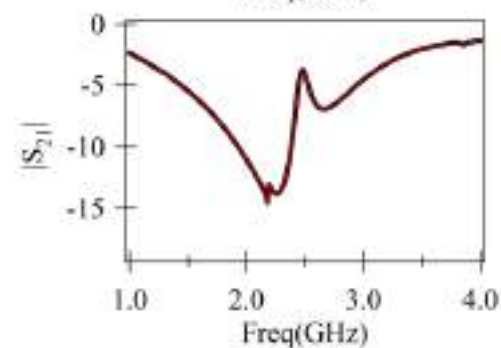
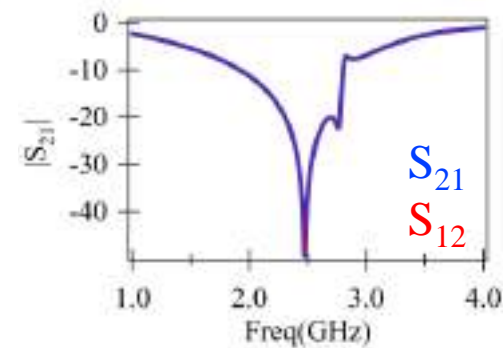
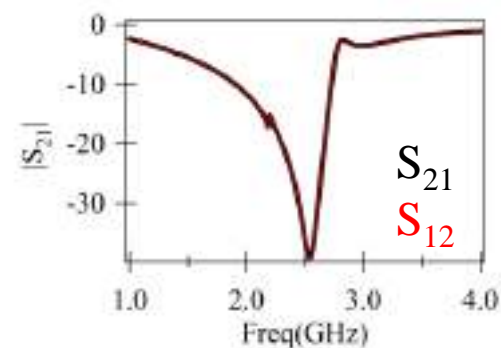
Vara-SRR + Cross



Vara-SRR + transmission line



Observe Reciprocal Phenomenon



## Summary

1. The level attraction has been observed in metamaterial (SRR).
2. Currently there is no evidence for non-reciprocal phenomenon.

## Next step

- Use RO5880 board to reduce the damping of the SRR.
- Data analysis: fitting, check phase...( $2\pi$  jump or not)