Damping Influenced level attraction

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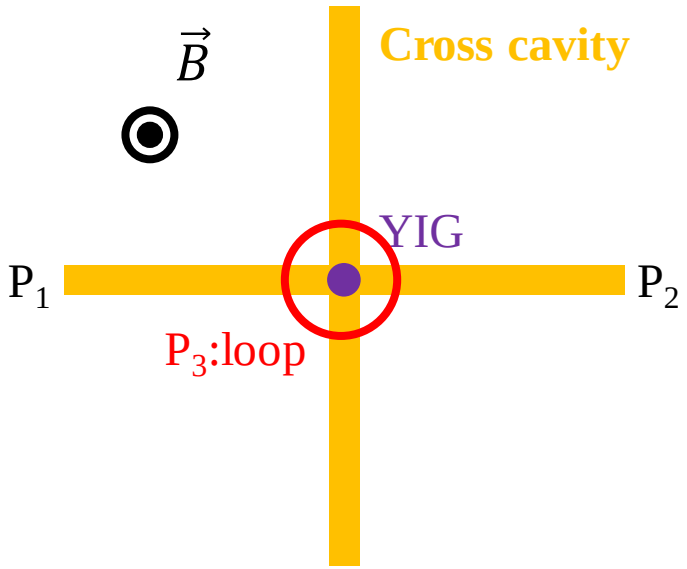
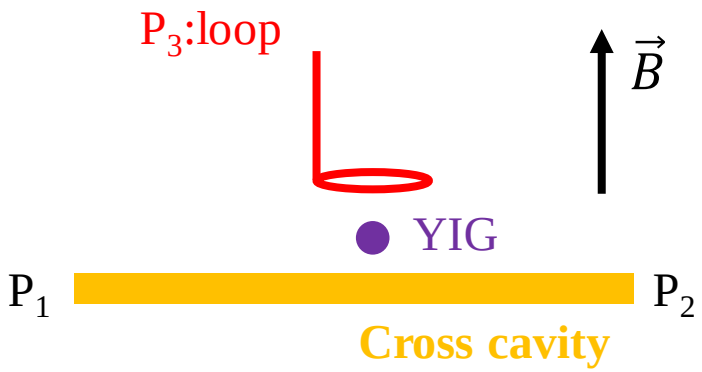
Experiment setup

Front view

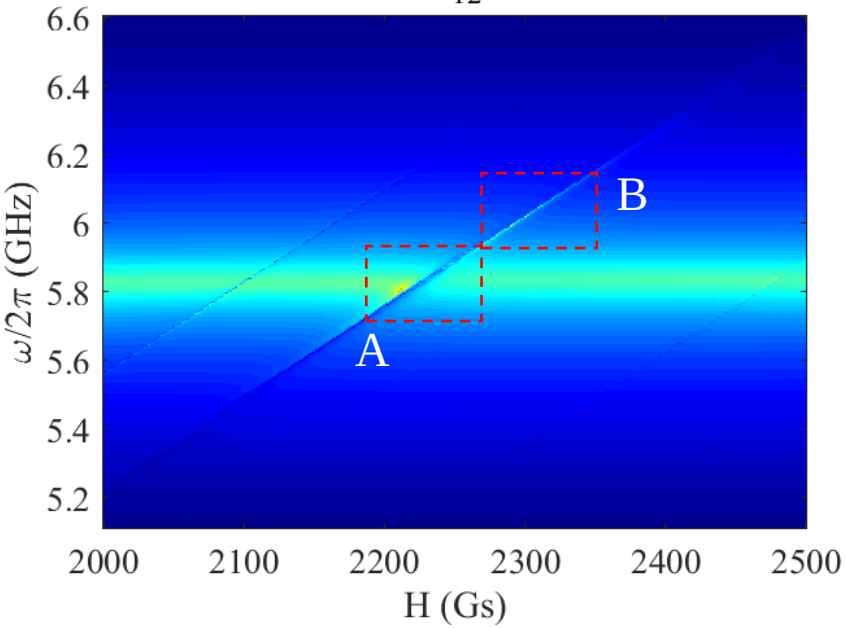


Bottom view

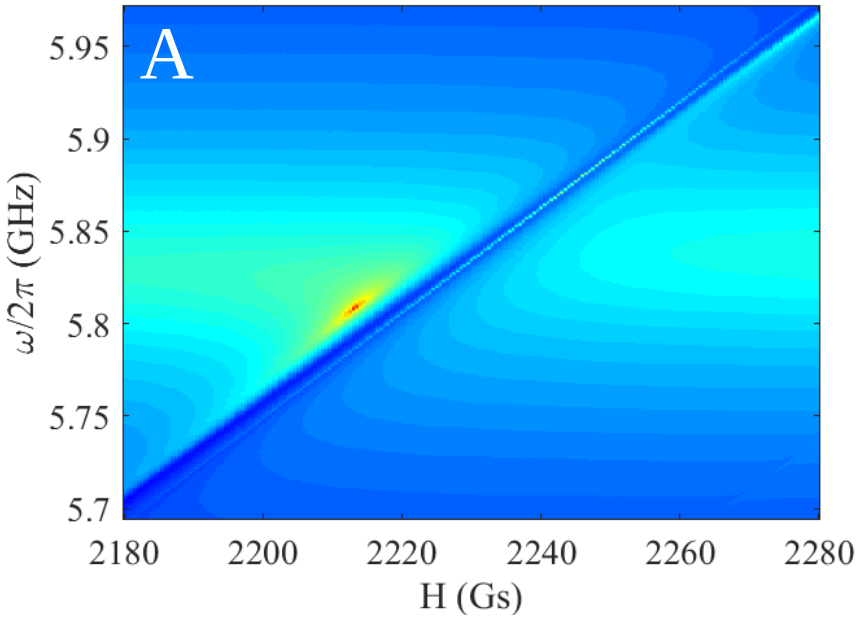


Measured mapping

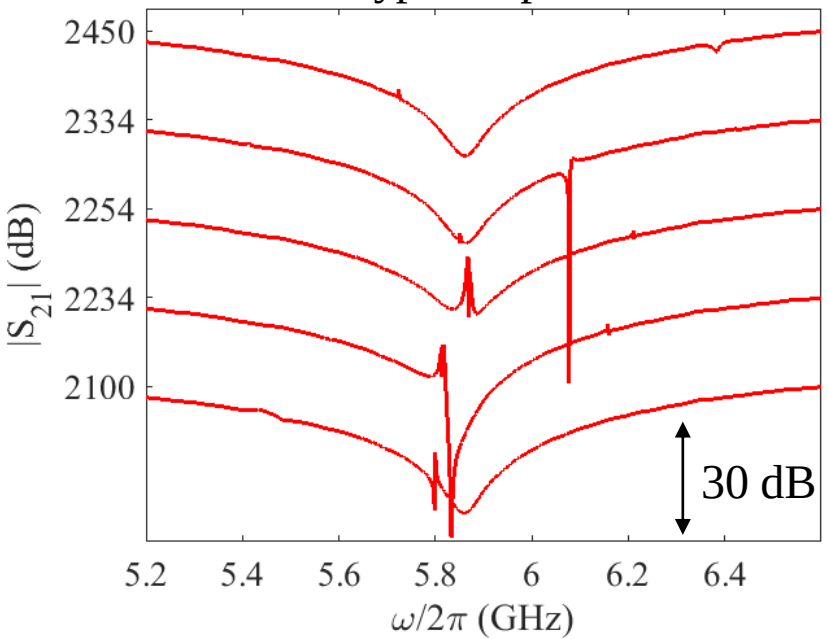
S_{12}



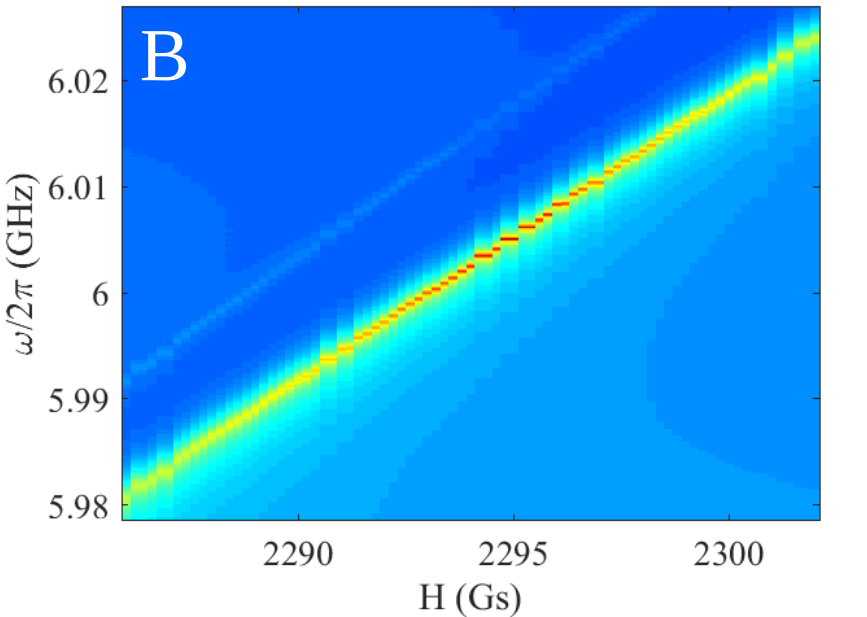
S_{12} Center ZDC

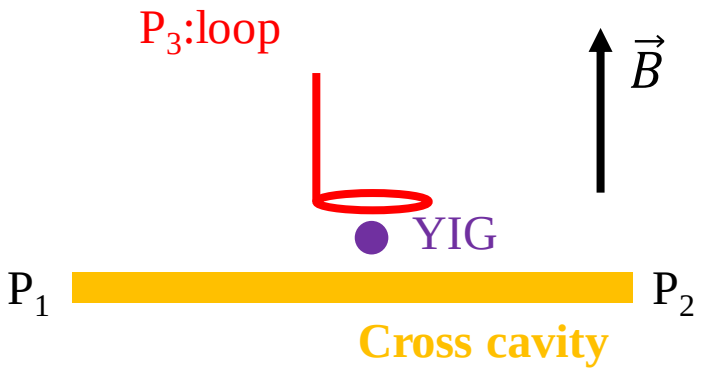


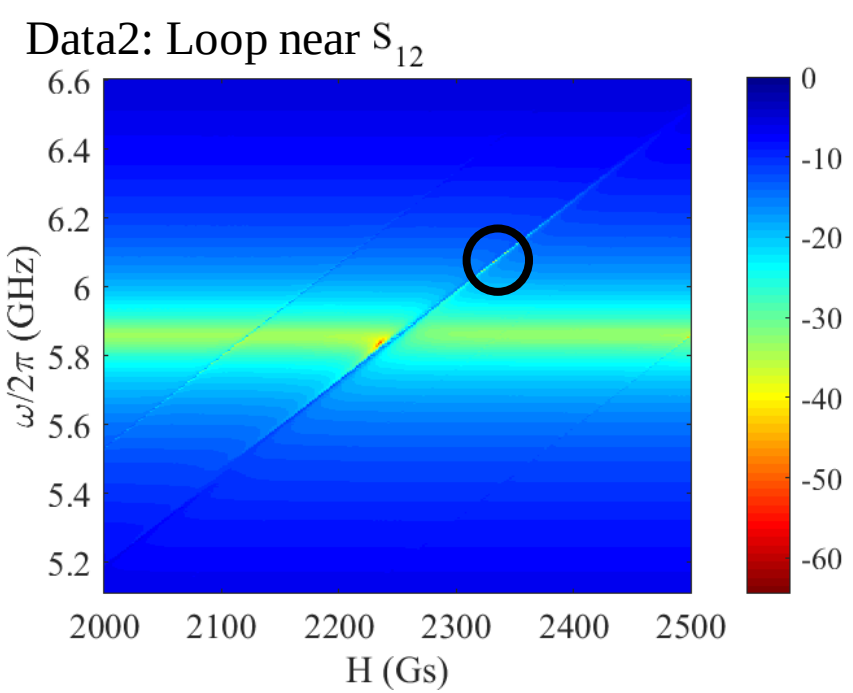
Typical spectra

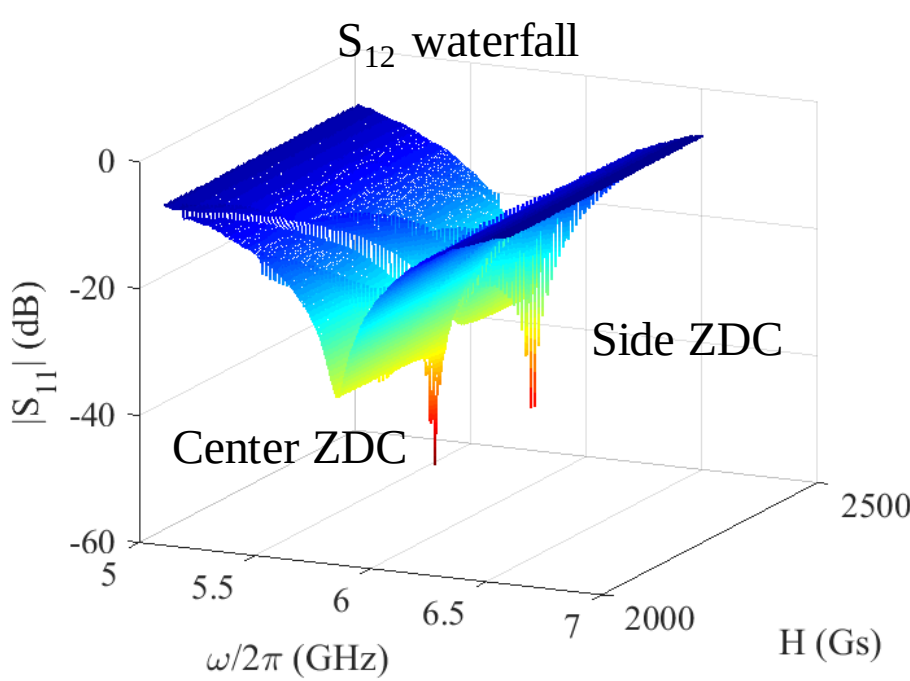


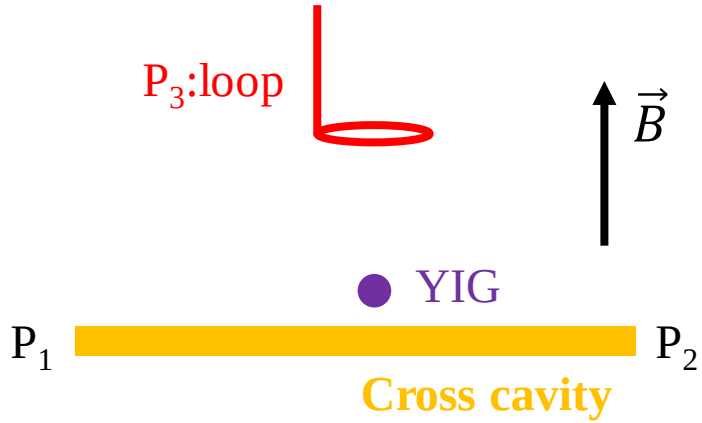
S_{12} Side ZDC

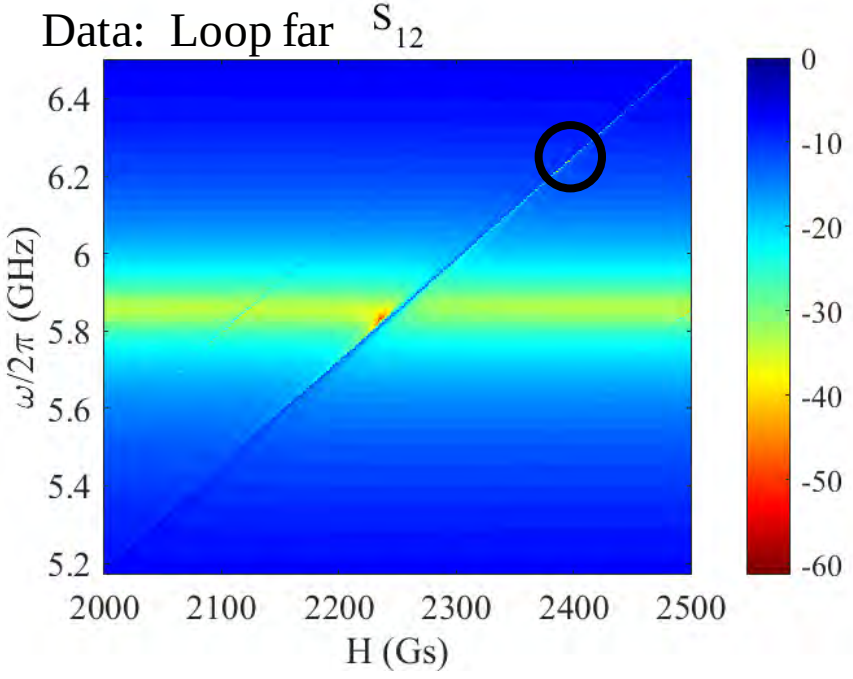


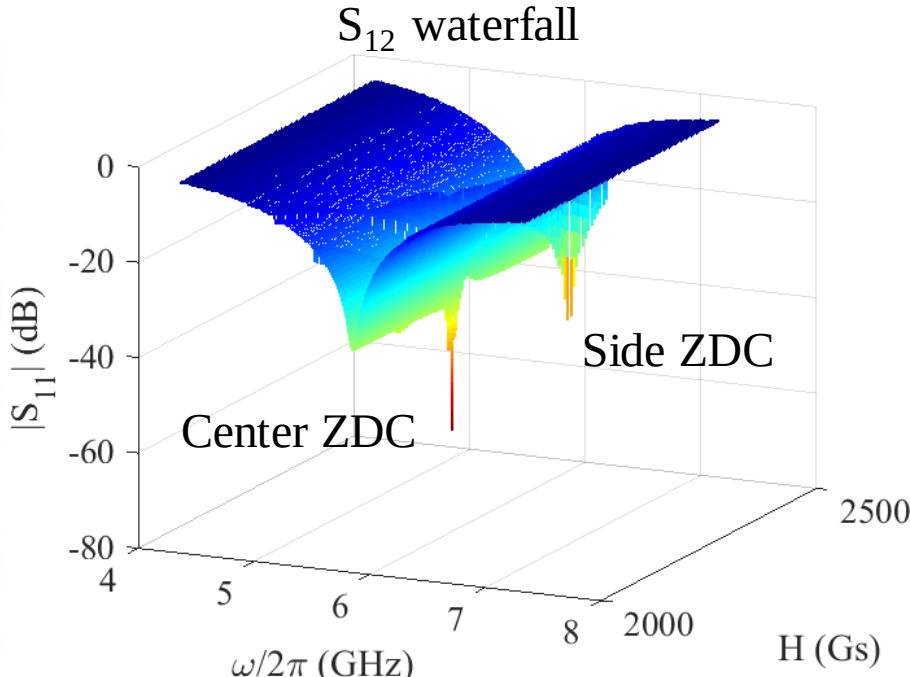

P3:loop
B
YIG
P1
P2
Cross cavity


Data2: Loop near S12
ω/2π (GHz)
H (Gs)

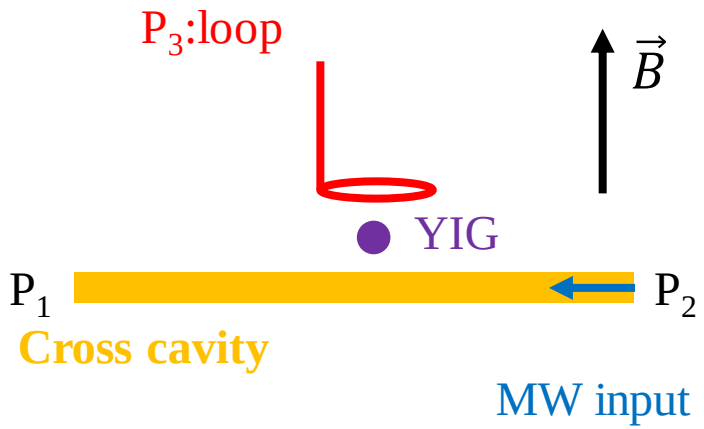

S12 waterfall
Side ZDC
Center ZDC
|S11| (dB)
ω/2π (GHz)
H (Gs)

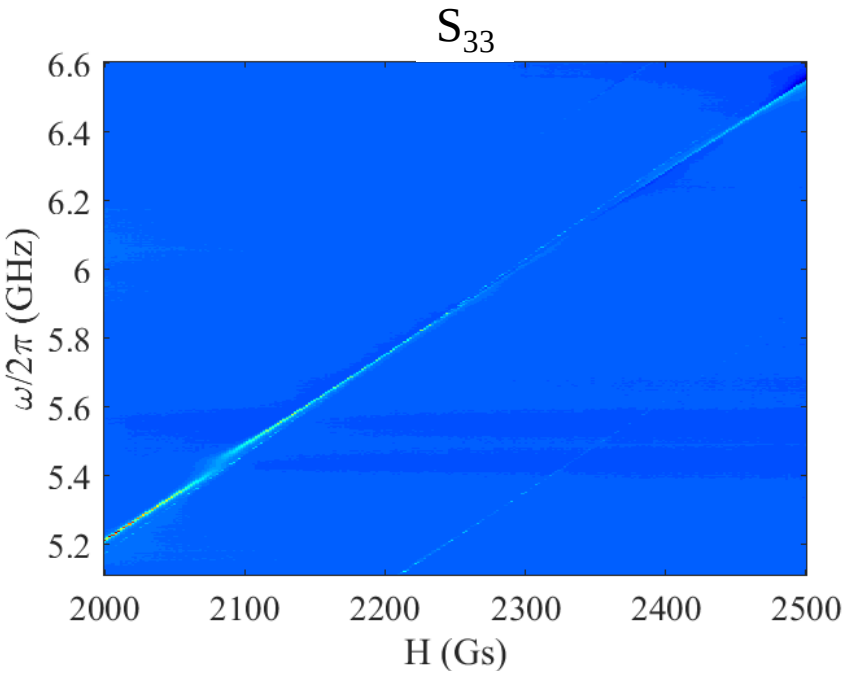

P3:loop
B
YIG
P1
P2
Cross cavity

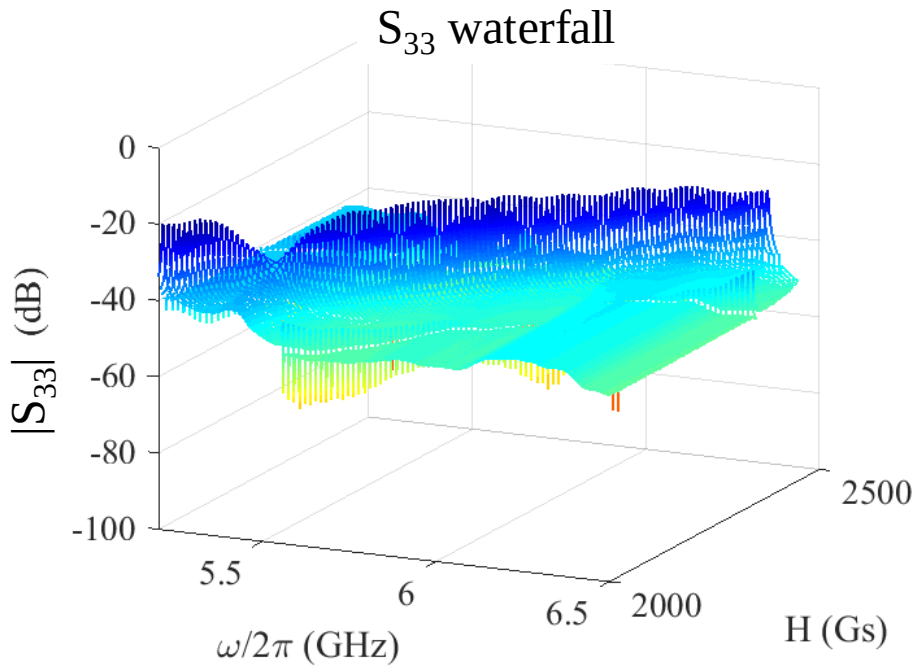

Data: Loop far S12
ω/2π (GHz)
H (Gs)

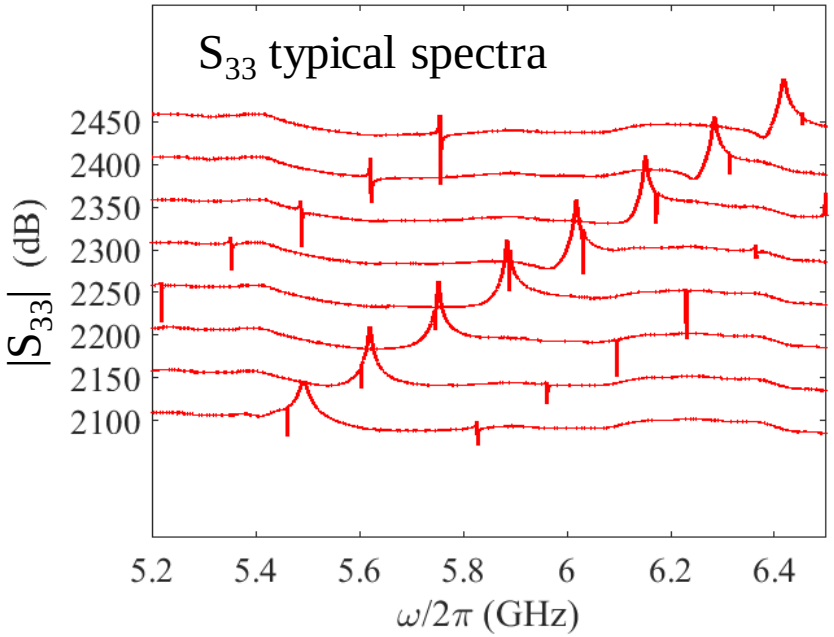

S12 waterfall
Side ZDC
Center ZDC
|S11| (dB)
ω/2π (GHz)
H (Gs)

Signal Read out from Port 3









Summary

	S_{12}	
Distance (loop from YIG)	Center ZDC (Δ)	Side ZDC (Δ)
1 ~ 0.5 mm	5.808 GHz (-41 MHz)	6.005 GHz (173 MHz)
2 ~ 1.0 mm	5.810 GHz (-43 MHz)	6.100 GHz (263 MHz)
3 ~ 1.5 mm	5.811 GHz (-44 MHz)	6.155 GHz (313 MHz)
4 ~ 2.0 mm	5.822 GHz (-43 MHz)	6.206 GHz (362 MHz)

1. The damping of YIG sphere can be modified by adding a magnetic probe and controlling the distance.
2. The Zero Damping Condition (ZDC) will be influenced.

Next step

1. Continue the experiment and analysis the data, check how the coupling is changed.
2. Confirm the damping change by using a transmission line.