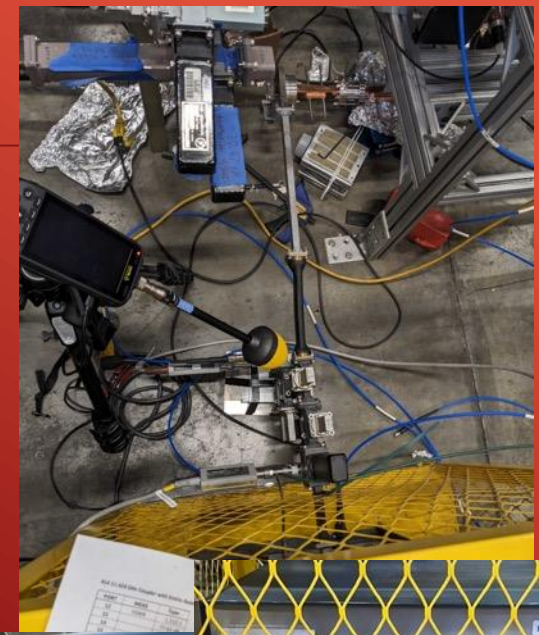
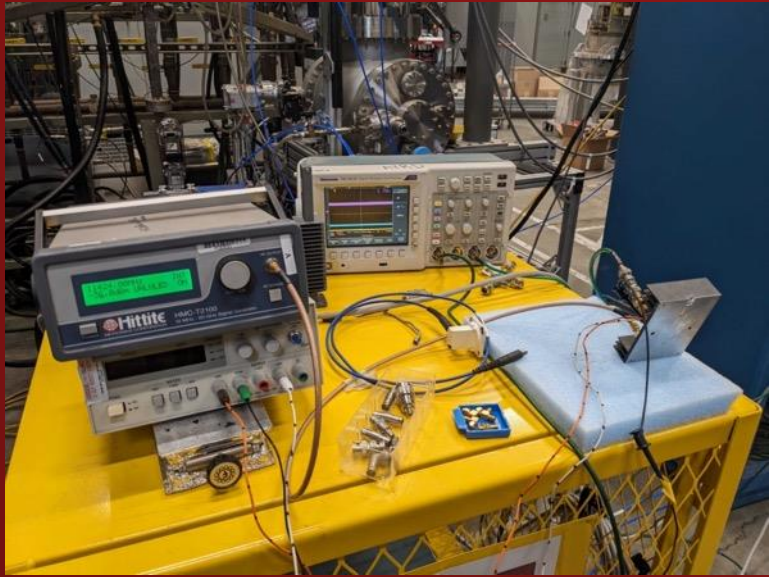


YBCO films in X band Hemispherical cavity at **High Power**

Mitchell Schneider, Ankur Dhar, Gregory le Sage

TEST STAND 4 at High Power

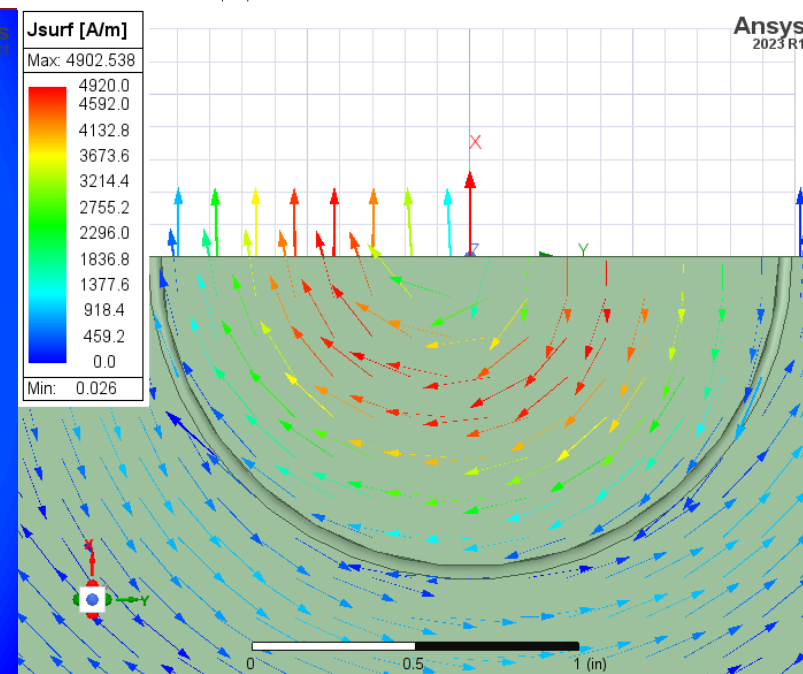
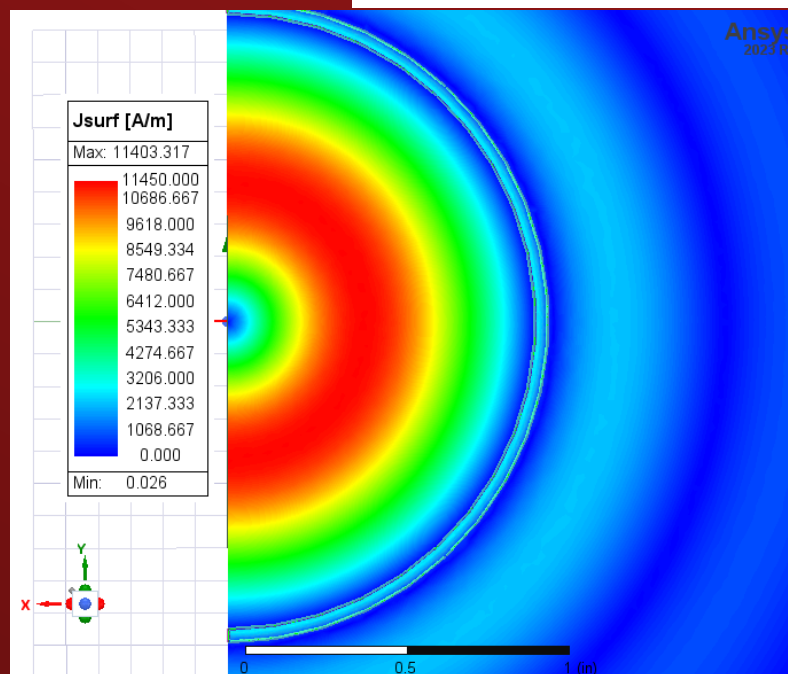


YBCO RF from TWT

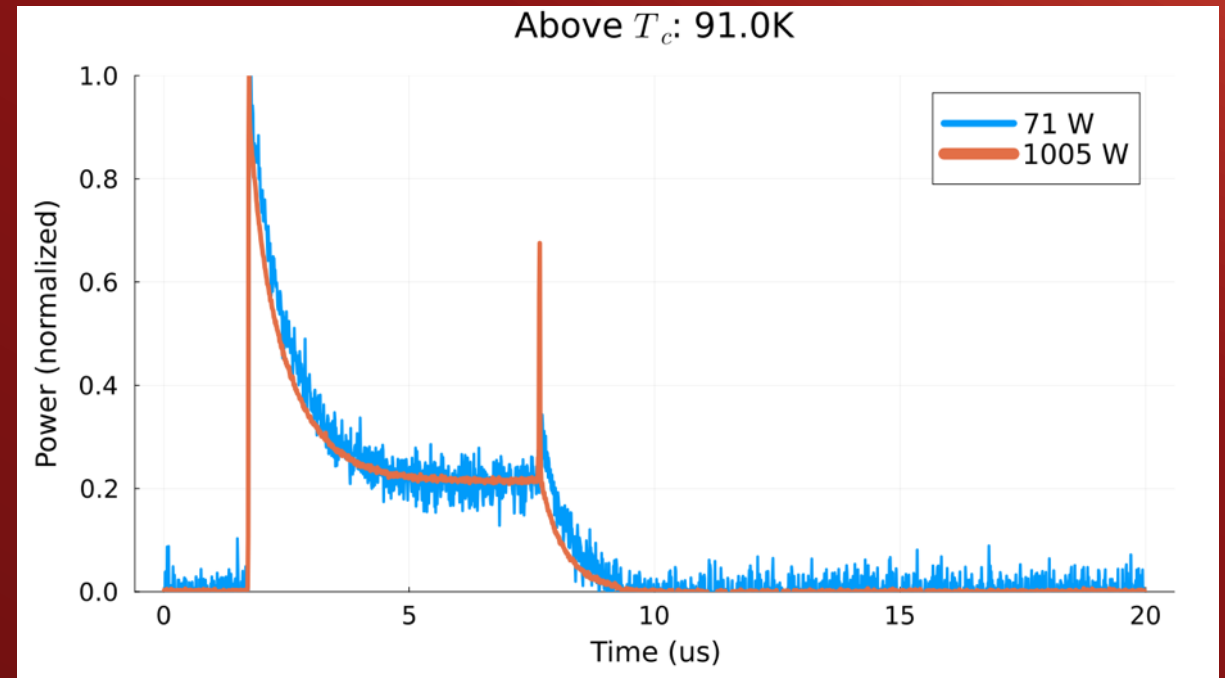
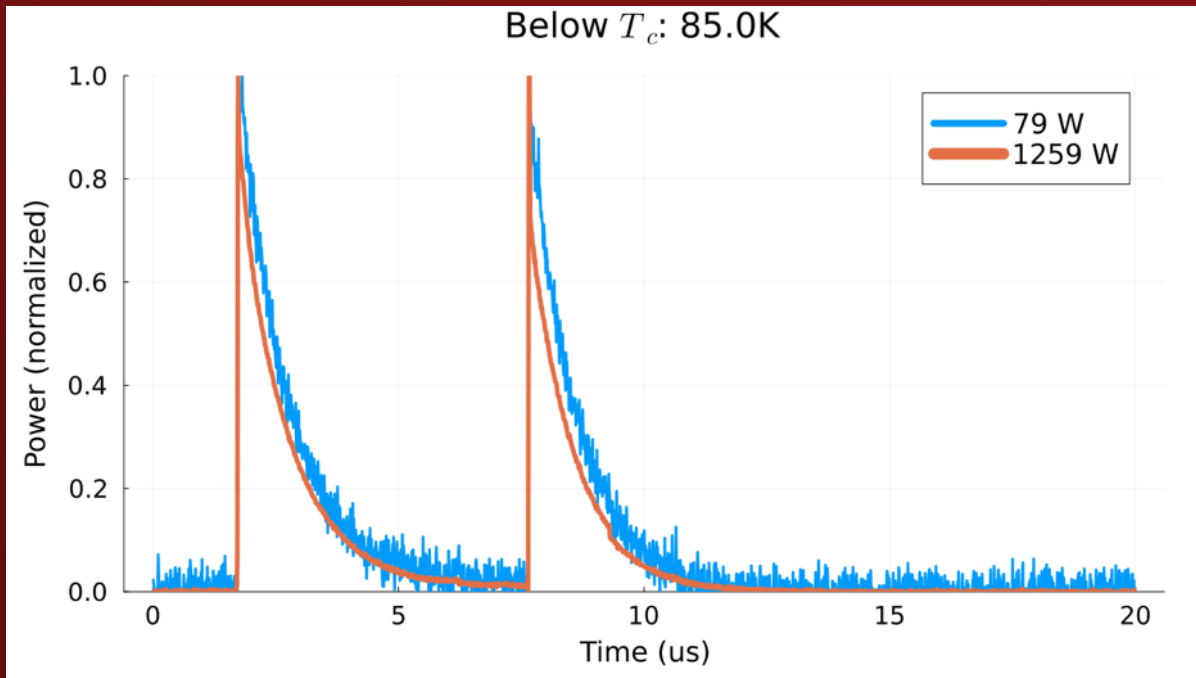
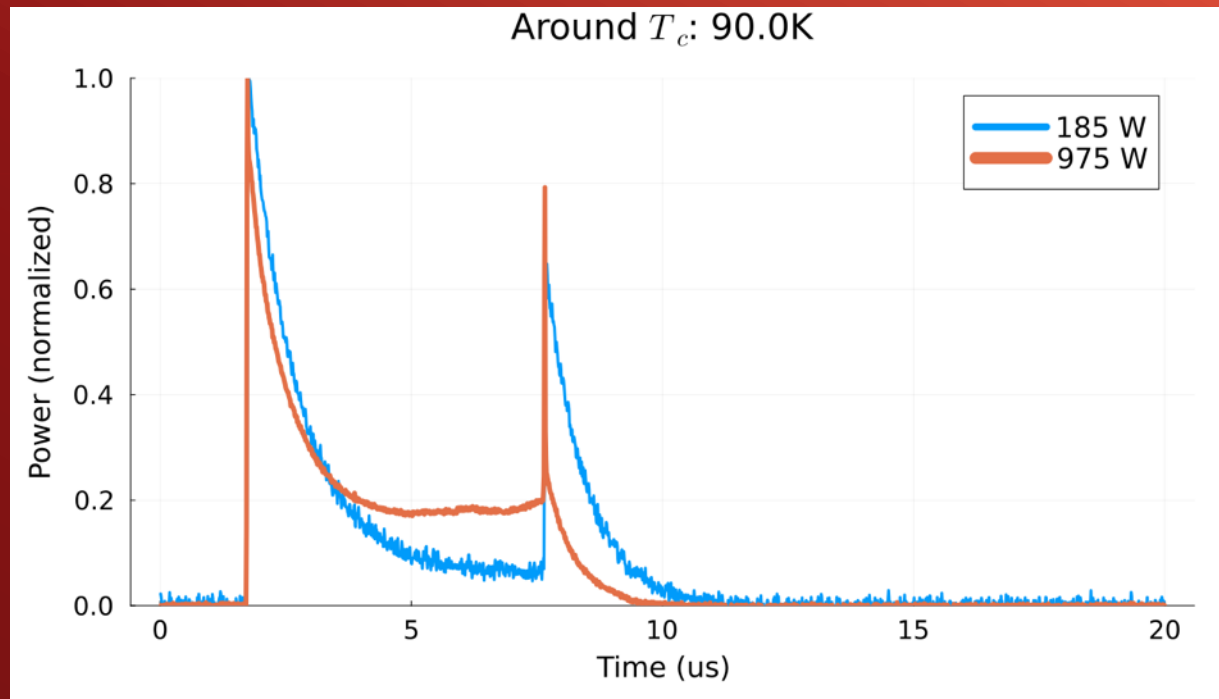
TWT is 1.6 kW @ 11.7 μ s Qtot is 75k and $f_0=11.43$ GHz

=> fill time is 13.4 μ s

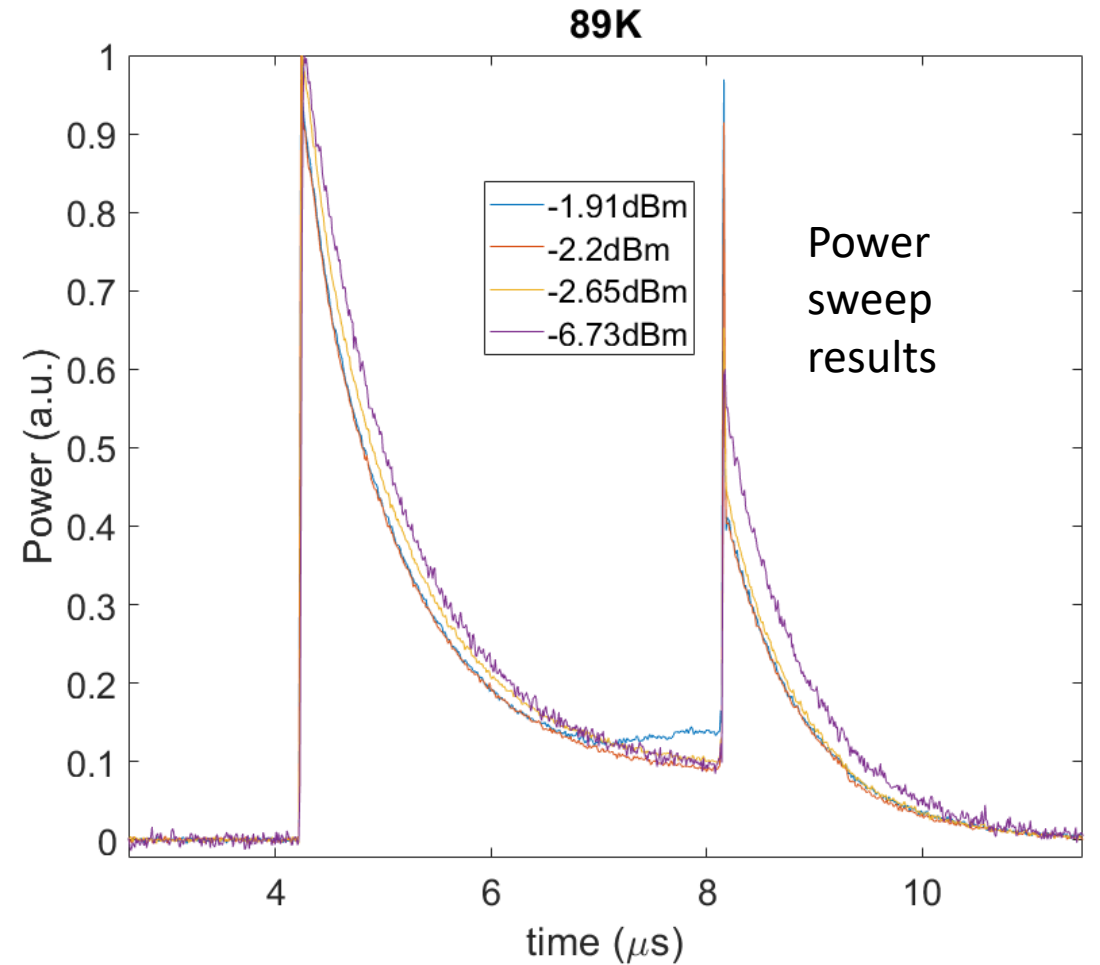
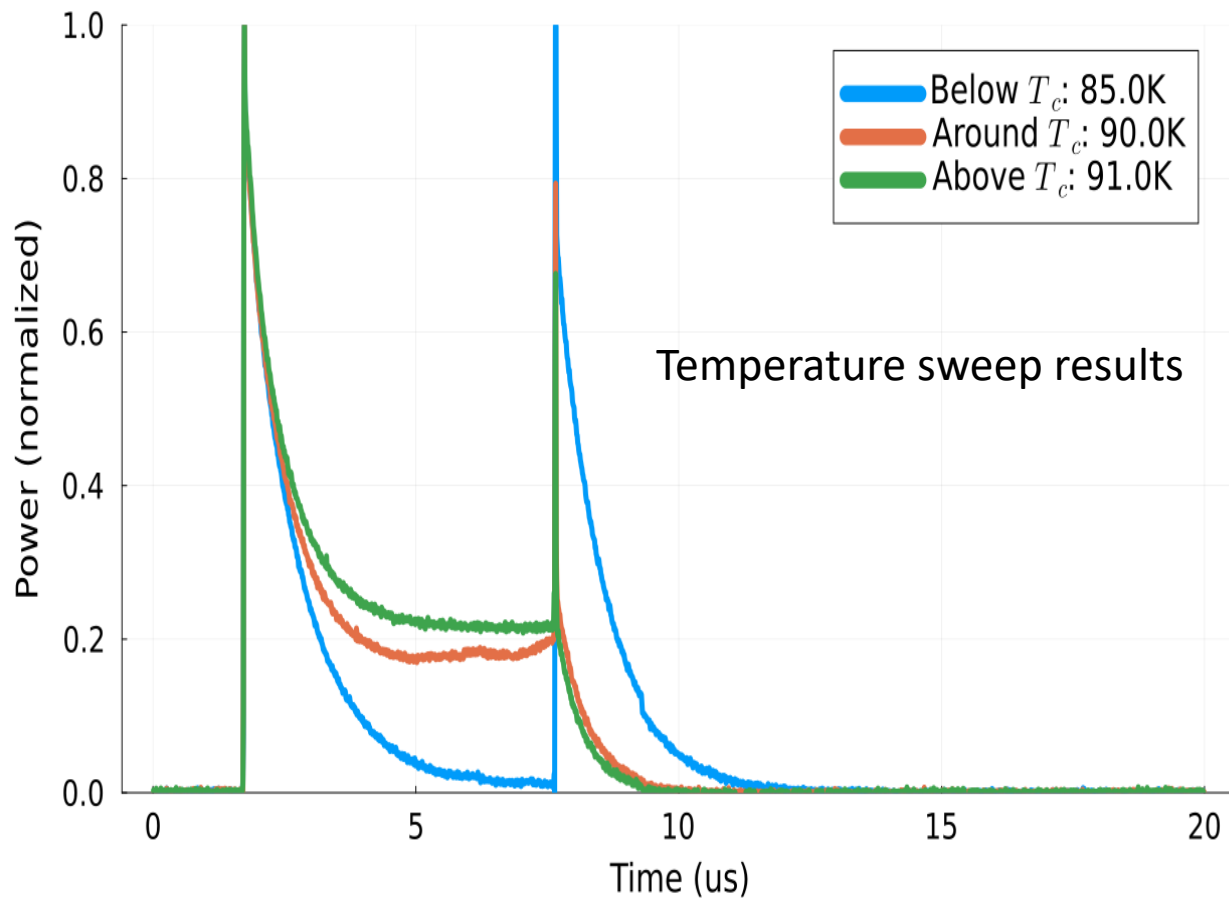
Tape sample has Surface currents of 10KA/m



Preliminary high Power results



Preliminary High Power results



Next Steps

Continue to explore the temperature dependence and power dependence of the cavity with YBCO

- 1) continue power sweeps
 - 1) From 85 K to 95 K in 1° steps we will do a power sweep from 100 W to 1.6 kW
 - 2) At a constant power level allow the system to drift through T_c
- 2) This should give us an idea at various temperatures and the pulse shapes that indicate quenching during the rf pulse if it occurs in our cavity
- 3) After that we will also vary the rep rate up to 1 kHz to try to determine if the observed behavior is due to average heating effects or due to hitting the critical current
- 4) We need material profile vs depth and the thermal diffusion coefficient to determine temperature profile in film