

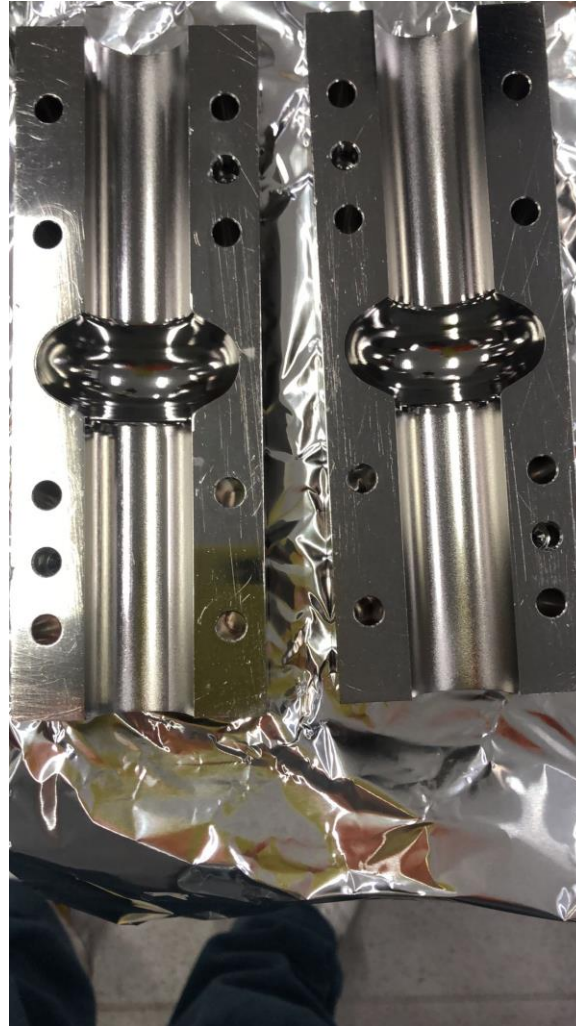
# SRF Update 18.04.23

Nathan Leicester

Along with

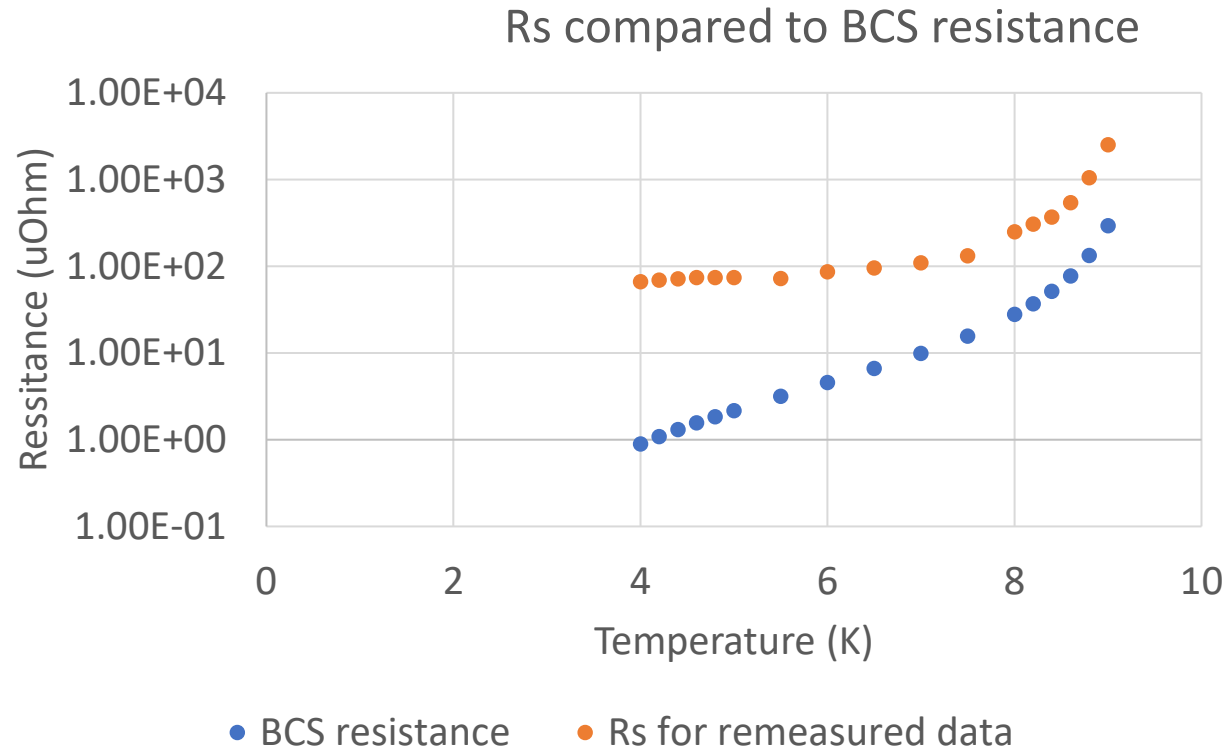
- Oleg Malyshev • Reza Valizadeh • Dan Seal • Chris Benjamin • James Conlon • Taaj Sian • Dan Turner • Liam Smith

# Latest deposition: Cavity C



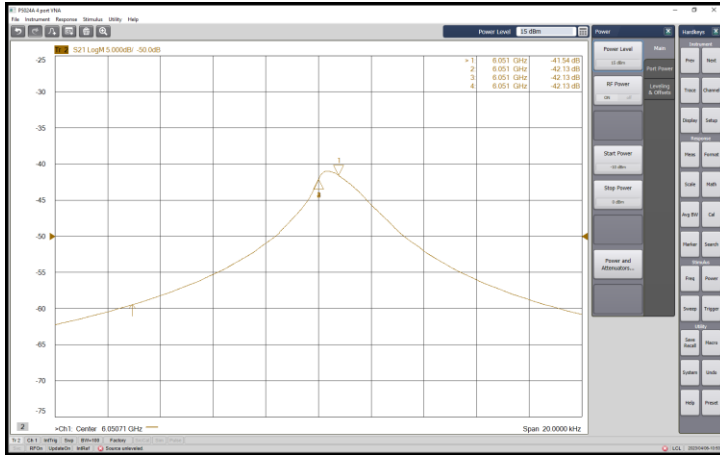
- Niobium coated
- Deposited with Planar Magnetron
- 4 hr deposition
- Electro polished

# Cavity C measurements

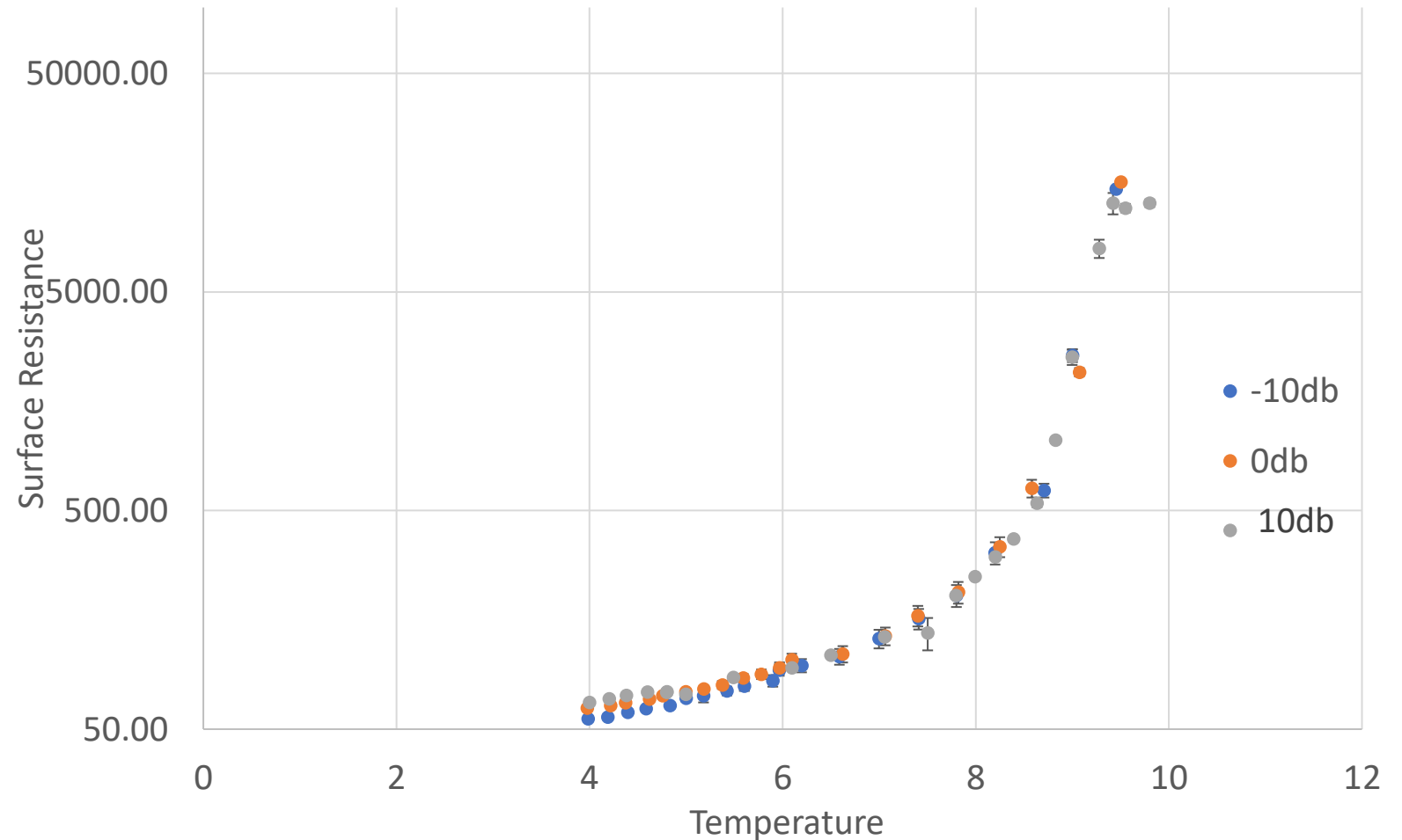


- Surface resistance approx. 70uOhm at 4.2K
- Critical temperature – 9.3K
- Still above BCS

# Issues with Cavity C data



- Asymmetry in S parameters results in slight change in data at different powers

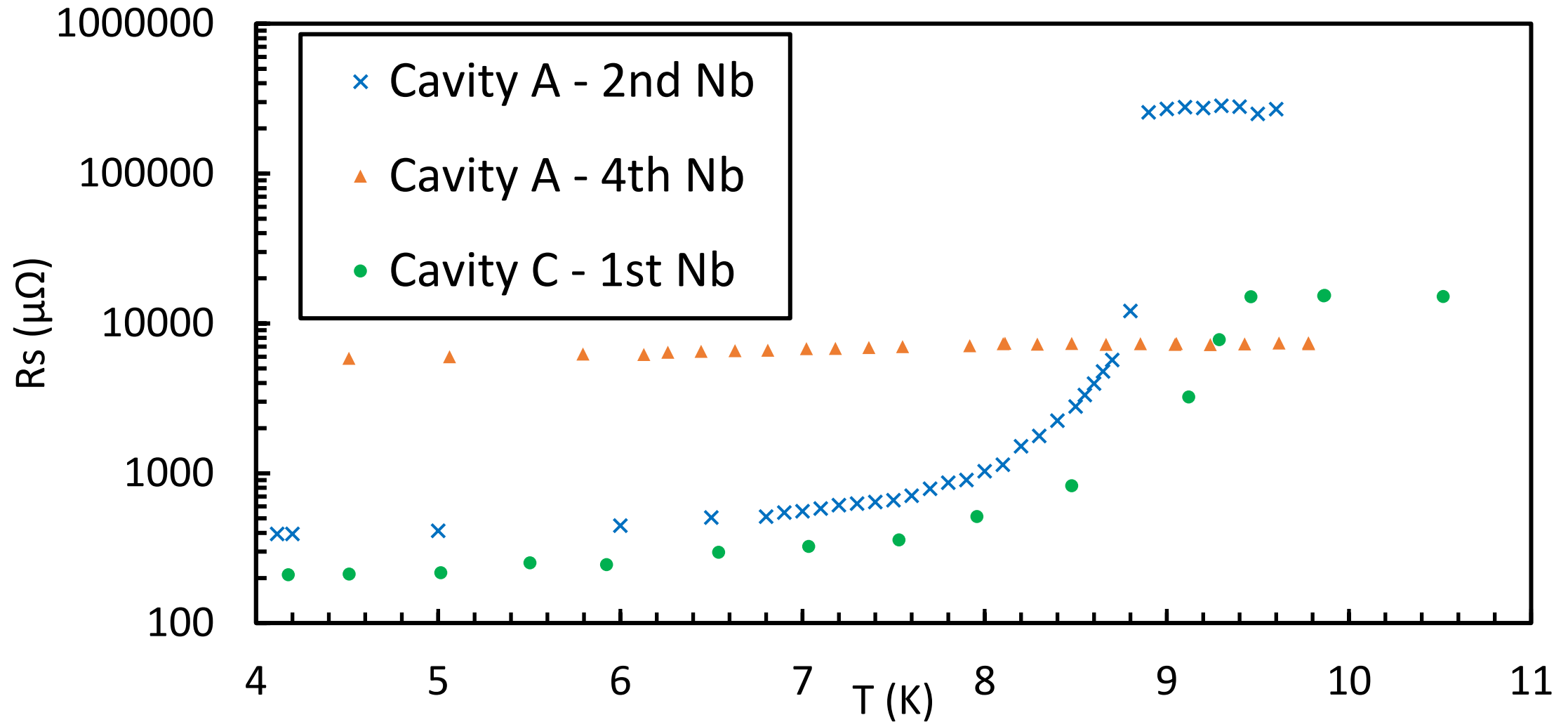


Temperature

# Summary of Measurements/coatings

Date	Cavity Treatment Film Condition $R_s$ at 4.2 K ( $\mu\Omega$ ) $R_s$ at 298 K ( $\mu\Omega$ )	Treatment	Film	Condition	$R_s$ at 4.2 K ( $\mu\Omega$ )
13.12.21	A	None	Nb 1	1 <sup>st</sup> film, cold	532
27.06.22	A	None	Nb 2	2 <sup>nd</sup> film, cold	393
08.12.22	A	None	Nb 3	3 <sup>th</sup> film, cold	5723
03.02.23	C	EP	Nb <sub>4</sub>	1 <sup>st</sup> film, cold	70

# Surface resistance of 3 Nb coatings



# Next Steps

- Reza will do another coat on the electropolished cavity C to optimize coating settings
- After this we are going to machine a bevel onto one of the cavities before coating again, so that the alignment of the cavity has less impact than it does currently
- Verification of the data that has been occurring over the last month means we have higher faith in the accuracy of our data than previously which will transfer to future coatings