

Further development of post deposition Laser treatment of planar Nb coated Cu samples

Daniel Turner on behalf of ARIES.

History

- The effect of substrate polishing has previously been investigated in ARIES WP15, and 15 Nb samples were deposited.
- Fourteen of these samples were tested using the field penetration experiment and 5 were post laser treatment, and have been reported at the 9th international thin film workshop and SRF 2021.
- All samples have now been sent to RTU for further polishing of the Nb using laser polishing.
- Three of the samples are shown on the next two slides to compare with samples post laser treatment.

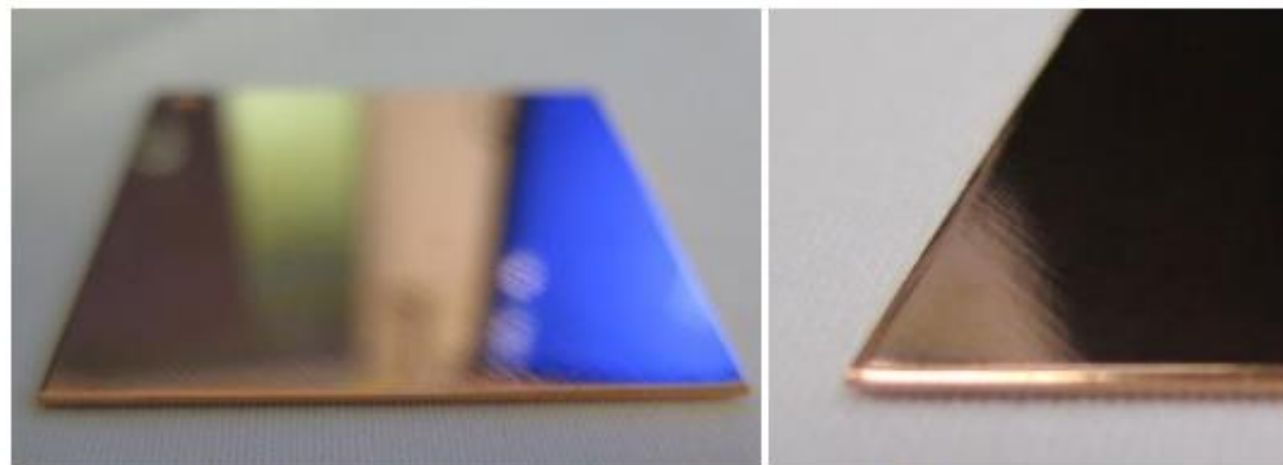


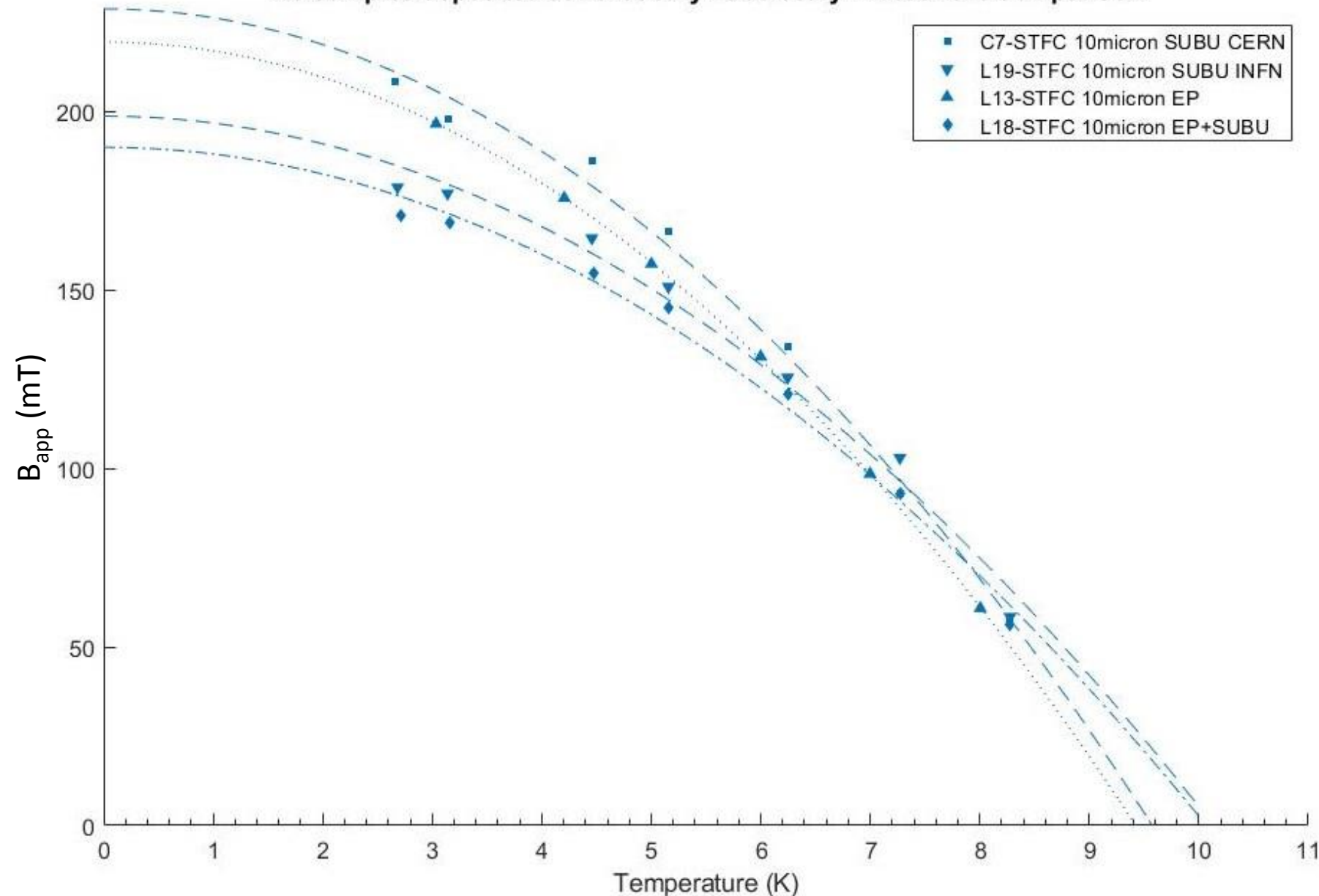
Figure 11 Pictures of a planar sample treated with EP process

Pre-Laser polishing

Bratislava VSM							STFC Field penetration				
		Sample	Substrate Treatment		B Perp (mT)	B para (mT)	Tc (K)	Tc (K)	Hfp(0) (mT)	Hfp(4.2K)	Hfp(4.5K) (mT)
Code	Origin	Material									
C7	STFC	Nb	10 μ m	SUBU CERN	24.1	150.1	9.35	9.43	228.82	183.4291	186.405
L13	STFC	Nb	10 μ m	EP	22	100.3	9.35	9.42	219.53	175.816	
L18	STFC	Nb	10 μ m	EP + SUBU	17.7	61	9.3	9.87	190.03	155.6199	154.606

- Cannot find any surface roughness measurements for the STFC samples to compare with post laser polishing surfaces.

Nb Samples deposited at Daresbury Laboratory - Treatment Comparison



- Graph (left) is the data of the Nb deposited at STFC pre-laser polishing.
- These samples will be returned to STFC post laser treatment and tested again to be compared and conclude the effects of laser treatment.