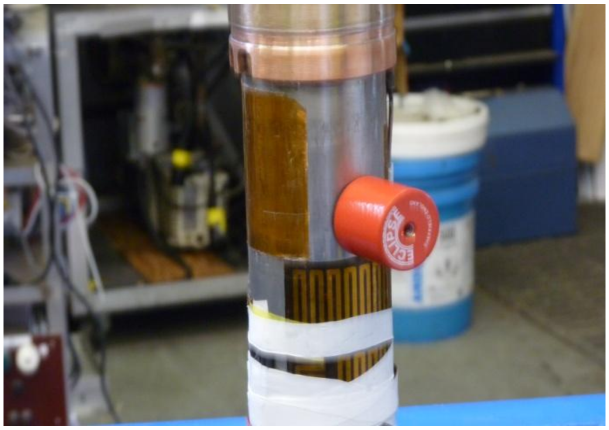
During an experiment in 2014, RFK noticed magnetic shielding of the applied field at low temperature inside the cryostat. This was attributed to (at the time unknown superconducting) solder used when the window cap was fixed in 2007. I purchased solder and flux from Oxford instruments then we removed the cap cleaned it and re-soldered.

PO# TR202329
Supplier: OXFORD INSTRUMENTS AMERICA INC *DO NOT USE, USE V #63959* **FOB:** ORIGIN
Buyer: NORMAN KWAN **Date Ordered:** 2014-08-21 **Date Entered:** 2014-08-21 (Batch 1400249)
Currency: US @ Cdn$ 1.09900

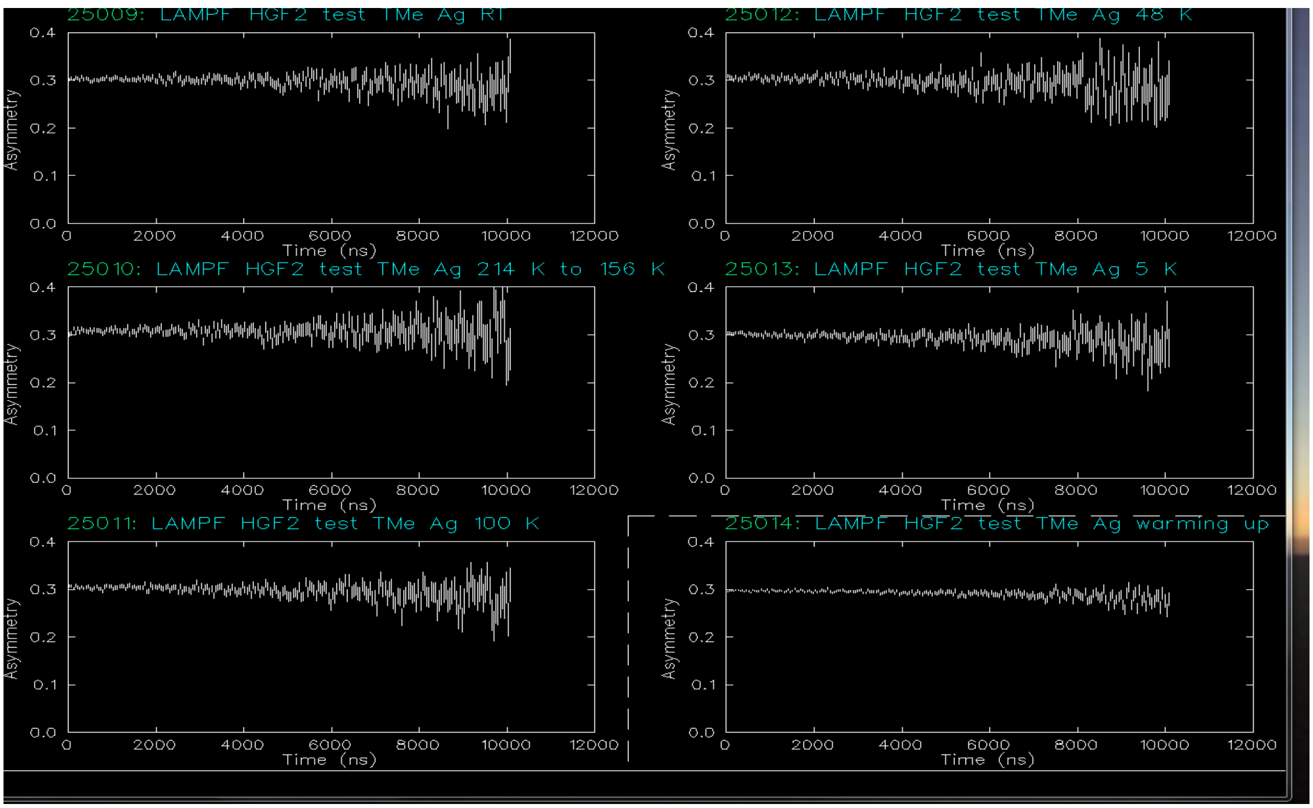
Item #	**Item Description**	**Project Acct**	**Requisitioner**	**Req #**	**Date Expected**	**Unit Cost**	**# Ordered** **$ Balance**	**# Received** **$ Balance**	**# Invoiced** **$ Balance**	**GST Code**	**PST Code**	**Notes**
1	**Manuf #:** C4-204 SOFT SOLDER -SILVER CONTENT: N 7% -TIN CONTENT: N 93% -LEAD, CADMIUM, & ZINC FREE -MELT & FLOW TEMP: 222 DEGREES C	1515.MRO	Hitti, Bassams	427867	2014-09-19	35.2000 / EA	1.00 .00	1.00 .00	1.00 44.75		P	
2	**Manuf #:** C4-402 FLUX EUTECTIC 157, 1kg TUBE AS PER QUOTE #140821.70 DATED AUGUST 21, 2014	1515.MRO	Hitti, Bassams	427867	2014-09-19	60.3200 / EA	1.00 .00	1.00 .00	1.00 76.67		P	
						Totals:	0	0	121.42			

While doing the work we noticed that the SS sample tube is magnetic! attached pictures below.

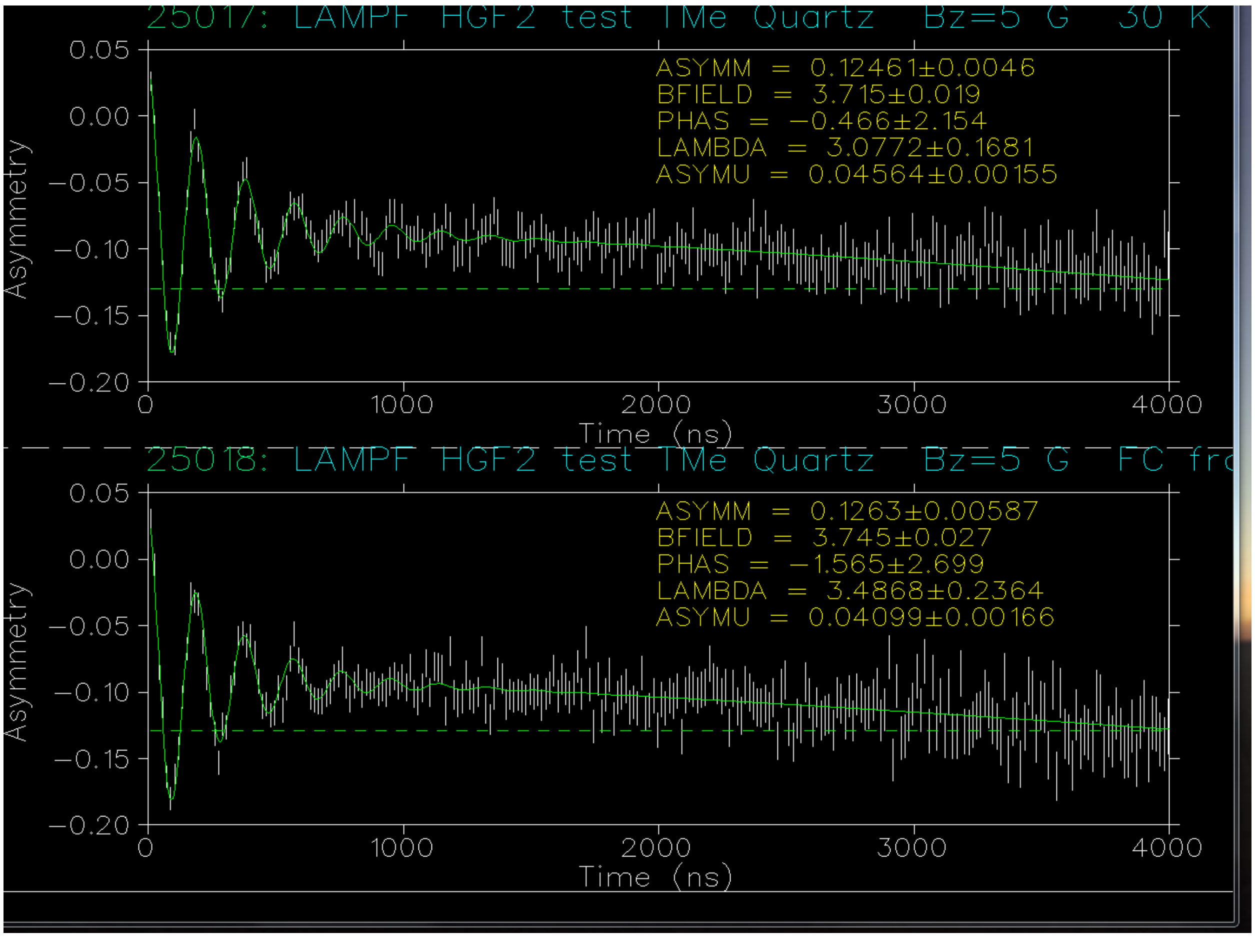


The Cryostat was assembled and tested with muons in May 2015. The test was performed with the Lampf spectrometer with the cryostat installed axially on the M20D beam line (runs 25008 through 25024)

The zero field data on Silver between 300 K and 5 K, show that the effect of magnetism at the sample position is not noticeable for ZF uSR experiments.



Then we looked for the effect of a ‘superconducting ring’ by measuring the frequency of muonium in quartz with applied magnetic field in the z-direction (parallel to the cryostat). First we applied Bz= 3.7 G and measured the frequency at 30 K then field cooled to 3.4 K and compared the fields (3.72 G @ 30 K and 3.74 G @ 3.4 K).



Next the quartz sample was zero field cooled from 30 K to 3 K, a magnetic field Bz=5.1 G was applied and the frequency of muonium measured at 3 K. This was followed by warming the sample back to 30 K and comparing the value of the fields (5.11 G @ 3 K and 5.17 G @ 30 K) . It is clear that no magnetic shielding is present.