Hall B Solenoid Meeting

Date: November 18, 2022
Time: 10:00 AM – 12:00 PM

Attendees: Patrick Achenbach, Aaron Brown, Pablo Campero, Brian Eng, Probir Ghoshal, Denny Insley, Dave Kashy, Onish Kumar, Tyler Lemon, Renuka Rajput-Ghoshal

1. **Discussed results of resistance and inductance tests on Solenoid**
   All
   1. In past week, on three separate occasions, Probir measured resistance and inductance of Solenoid over the coils and splices
      - Each measurement returned the same results
   2. There is no ground fault in the Solenoid circuit
   3. Appears to be a short at leads of Solenoid, as resistance is 0.1 Ω between leads
   4. Over coils, resistance is higher than expected
      - Measured resistance should be ~5 Ω from leads of voltage taps
      - Coils 1 and 2 are ~40 Ω
      - Coils 3 and 4 are ~90 Ω
      - Coil 5 is ~120 Ω
   5. Due to short at leads of Solenoid, but not at coils, theory is that short may be inside or after the Solenoid's service tower
   6. Inductance over entire Solenoid and individual coils is ~1/2 of previously measured value

2. **Discussed next steps in diagnostics**
   All
   1. Probir will repeat resistance measurements today with high precision multimeter and then repeat the same measurements next week
      - If resistance increases between the two sets of measurements, it is an indicator that the coils are not cooling as they should
        - A potential cause of cooling issues of coil could be the coils have delaminated from the copper cooling plates
      - For measurements after these two sets, investigating whether feedthroughs at Solenoid are accessible, to eliminate any potential issues with voltage tap leads' resistance as cause of increased resistance
   2. Probir and Renuka will compile measurements from the Solenoid commissioning and the most recent sets for a concrete comparison as to whether the values have changed
   3. Denny and Dave will look at cryogenic valve and flow settings to see if there is a difference between now and before the recent failure, potentially indicating that the magnet is not cooling as expected