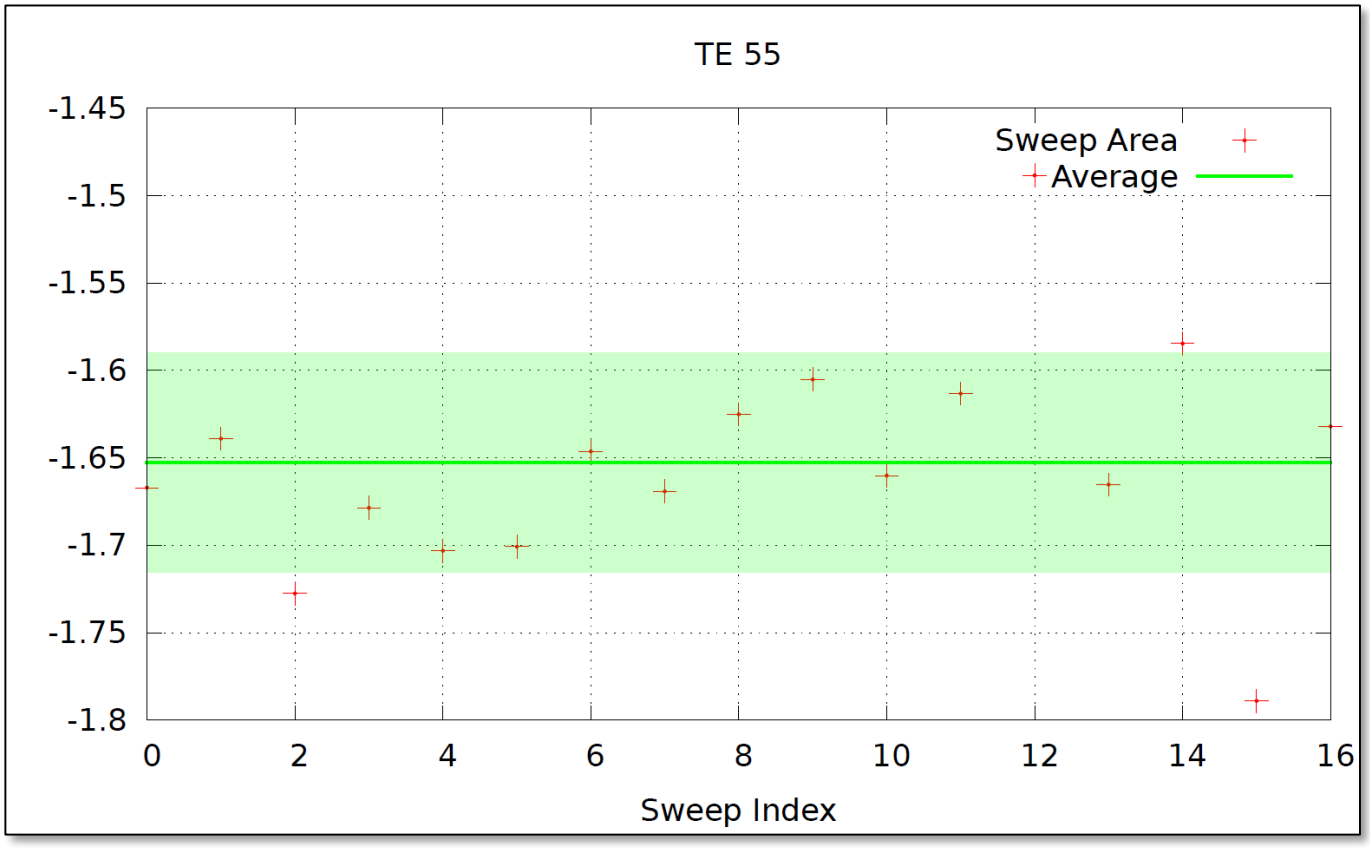


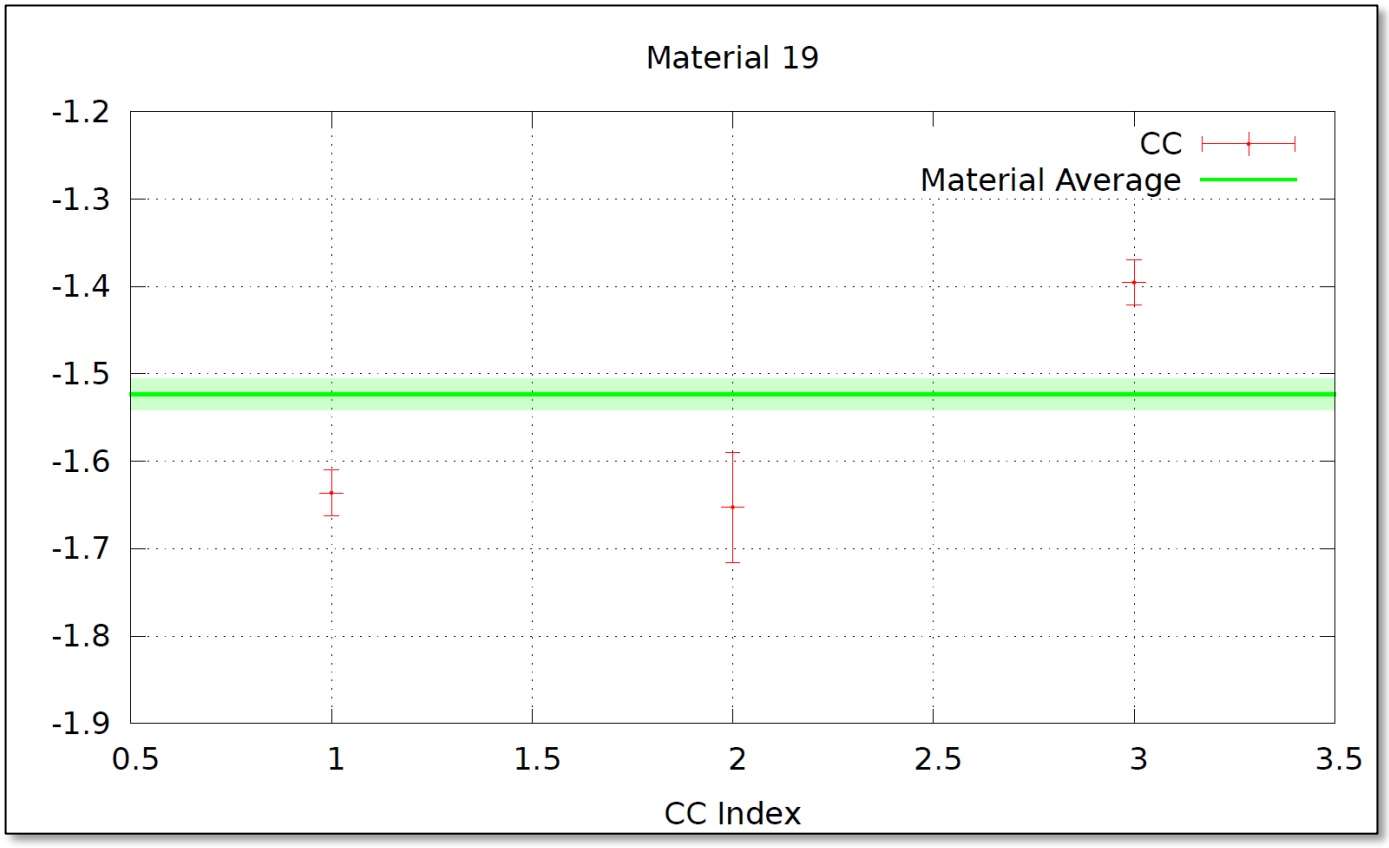
- 'Sweep Area' signals are averaged using the usual method,

$$TE_{ave} = \sum_i \frac{Area_i}{N}$$

- Systematics from experiment conditions ($\Delta B_{drift}, \Delta T$, NMR-drift, etc.) will eventually be added to each 'Sweep Area'
- Excluding systematics TE uncertainty is determined using the standard deviation method,

$$\sigma_{TE_{ave}} = \sqrt{\frac{\sum_i \left(Area_i^2\right)}{N} - \left(\frac{\sum_i Area_i}{N}\right)^2}$$

- Standard deviation method over-estimates uncertainty to partially account for systematics (~2.3%, D. Keller)



- Material Calibration Constants are done by taking the weighted average of all CC's done on that material,

$$CC_{mat} = \frac{\sum_i \left({CC_i}/{\sigma_{CC,i}^2} \right)}{\sum_i \left({1}/{\sigma_{CC,i}^2} \right)}$$

- Uncertainty in the material Calibration Constant is done by averaging each CC's uncertainty,

$$\sigma_{TE_{mat}} = \frac{1}{\sqrt{\sum_i \left({1}/{\sigma_{TE,i}^2} \right)}}$$

- Adding systematic uncertainties to each TE measurement will add to the material CC uncertainty, but it is apparent from the 'Material 19' plot that some measurements may need to be discarded (e.g. CC Index 3)

Conclusions and Current Work

- The weighted average method is used to calculate run polarization average and uncertainty.
- Sources of systematic uncertainty still need to be studied in detail but have been estimated at $\sim 2 - 3\%$.
- This detailed study of statistical uncertainty has allowed me to see that several TE measurements should not be used (poor fitting, fluctuations in temp. or area during data taking, etc.)
- I am currently going back through the TE measurements and using a more rigorous χ^2-minimization technique to exclude poor data.