Degaussing Requirements for the Tagger Magnet during KLF

- Tim measurements indicated presence of approximately 50 Gauss residual magnetic field in the tagger magnet when the power supply was turned off.

- A 50 Gauss residual field over ~6m length (~0.03 T·m) will result in $\Delta\phi \approx 0.75$ mrad angular change of the 12GeV electron beam.
  1. $\Delta\phi \approx 0.75$ mrad beam angle at the CPS radiator will result in a $\Delta x \approx 5$ cm shift of the photon beam position at the Kaon Production Target. This is a significant shift, and it may be not easy to correct.
     - But ≤5 Gauss residual field will result in a few millimeter shift of the photon beam position which should not be difficult to correct using corrector magnets.
  2. Based on our simulations, $\Delta\phi \approx 0.75$ mrad beam angle shift at the nominal beam position at the CPS radiator may result the $\Delta x \approx 30$ mm upstream shift of the electron beam hot spot and $\Delta T_{max} \approx 30^{O}$ C increase in the CPS absorber.
     - But ≤5 Gauss residual will result in $\Delta\phi < 0.1$ mrad beam angle at the radiator and will not produce significant temperature change. This angular shift will be visible as a photon beam position shift and will be corrected.
  3. $\Delta\phi \approx 0.75$ mrad beam angle may result the $\Delta x \approx 4$ mm shift of electron beam position at the CPS radiator. This is a significant shift, but we should be able to monitor it and correct it.
     - But ≤5 Gauss residual field will result in a few hundred microns shift of the electron beam position at the CPS radiator which should be easily correctable.

- Residual magnetic field of 50 Gauss may cause problems with beam tuning during KLF.
  - Residual magnetic field of ~5 Gauss should be fine for KLF.