Error Fields (Myers, Gerhardt, Park, and Menard)

❑ **NSTX-U error field considerations**

  ❑ The PF5 coils may have changed shape → could produce n=2 EF

  ❑ New current feeds for OH and divertor coils → different (smaller?) EFs

  ❑ New J/K cap for NB2 → non-axisymmetric EFs during current ramp?

  ❑ Unanticipated EF sources are possible (or even probable)

❑ **Error Field PTP: Coil shape measurements in the test cell**

  ❑ Assess PF3/4/5 coil shapes with a ruler and plumb bob

  ❑ Measure coil-to-vessel and coil-to-coil positions at multiple toroidal locations

❑ **Error Field XMP: Vessel-generated EFs in AC vacuum shots**

  ❑ The new J/K cap is likely to carry non-axisymmetric induced currents during the current ramp → the importance of this effect is unknown

  ❑ Swing the OH + PF3/4/5 during vacuum shots to quantify the axisymmetry of the induced vessel currents

Error Fields (Myers, Gerhardt, Park, and Menard)

❑ Error Field XP #1: Low β, low density locked mode studies
   ❑ n=1 compass scans (multiple phases and amplitudes)
   ❑ Should run early in the campaign (the RWM sensors are required)
   ❑ Disruptions as the primary diagnostic (rotation available?)

❑ Error Field XP #2: High β n=1,2,3 compass scans
   ❑ Intra-shot modulation and/or "spiral" n=1,2 scans during long pulse operation
   ❑ Rotation and disruption as diagnostics
   ❑ Flip the n=3 polarity to optimize and compare to the NSTX n=3 settings

❑ Error Field XP #3: Optimization of PID Dynamic EF Correction
   ❑ Tune amplitudes, phases, and gains of the PID DEFC algorithm
   ❑ Requires the real time RWM controller to be operational
   ❑ Utilize low pass filter to isolate the effect of DEFC from fast RWM control