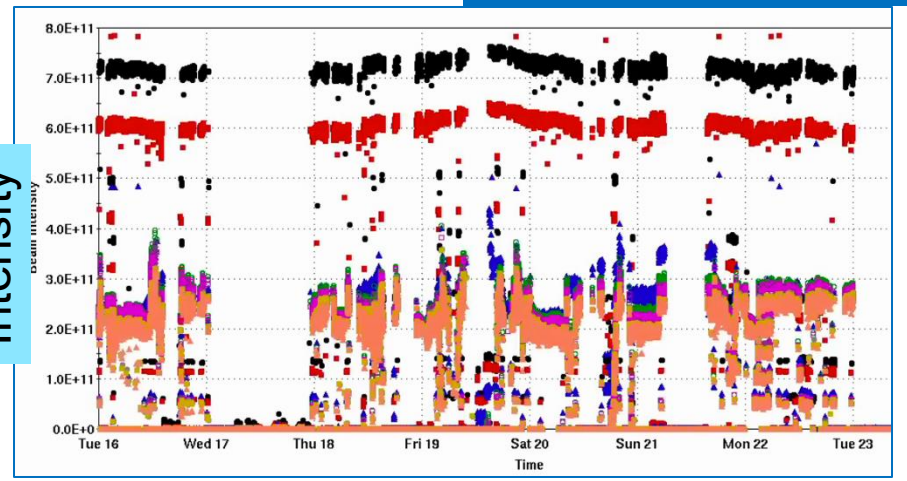
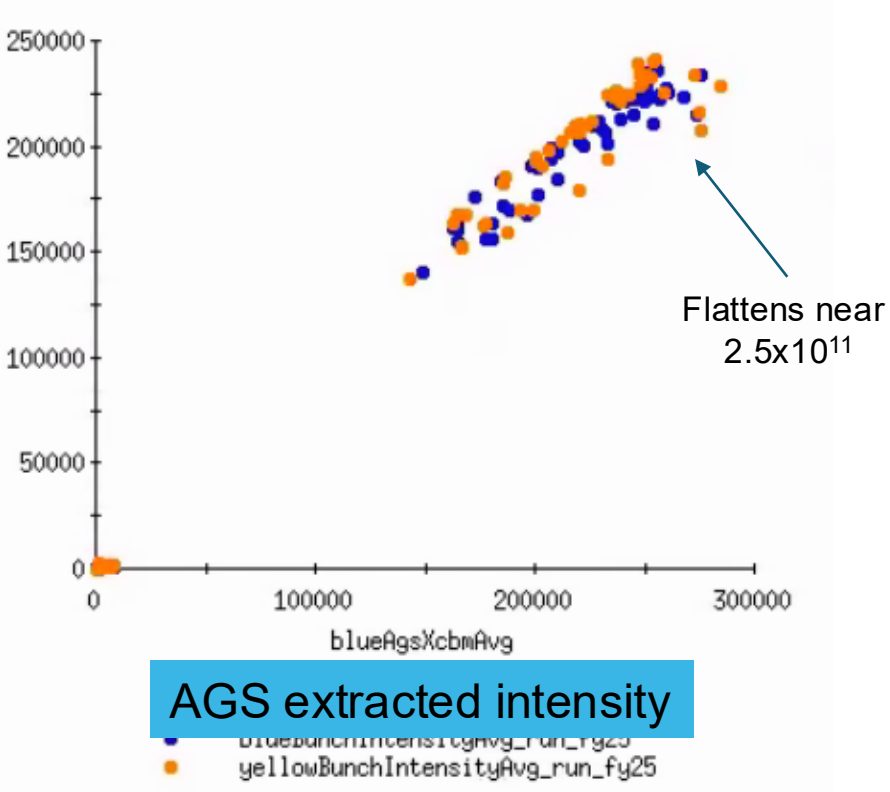
Injector Status: Time meeting 12/23/25

- Booster input intensity routinely up to $7x10^{11}$
- AGS extraction intensity ~ $2.5x10^{11}$
  - Incremental fill-by-fill increases
  - Increasing longitudinal emittance to avoid fast RHIC injection instability
- Pol vs intensity slope nearing previous optimum

Injector Intensity (protons)

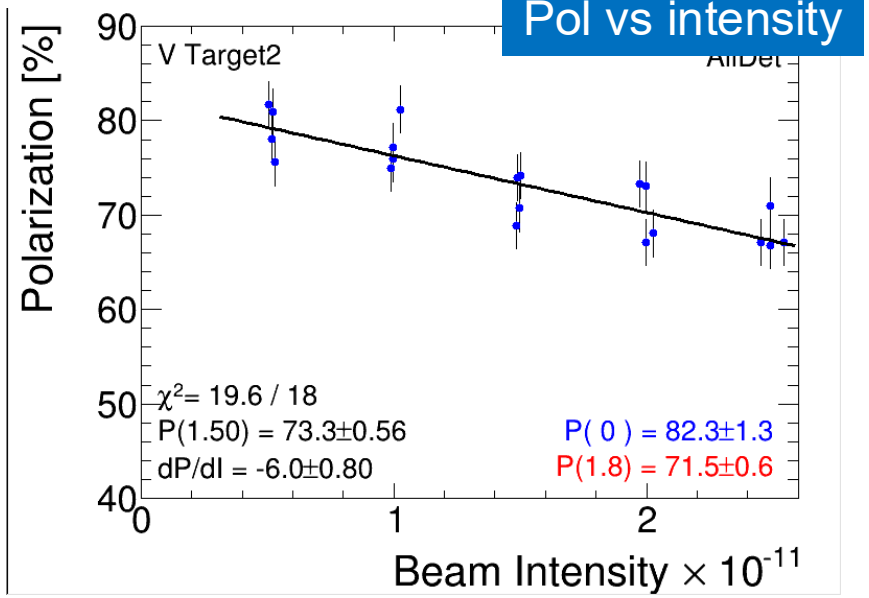


RHC Injected intensity



AGS extracted intensity

Pol vs intensity



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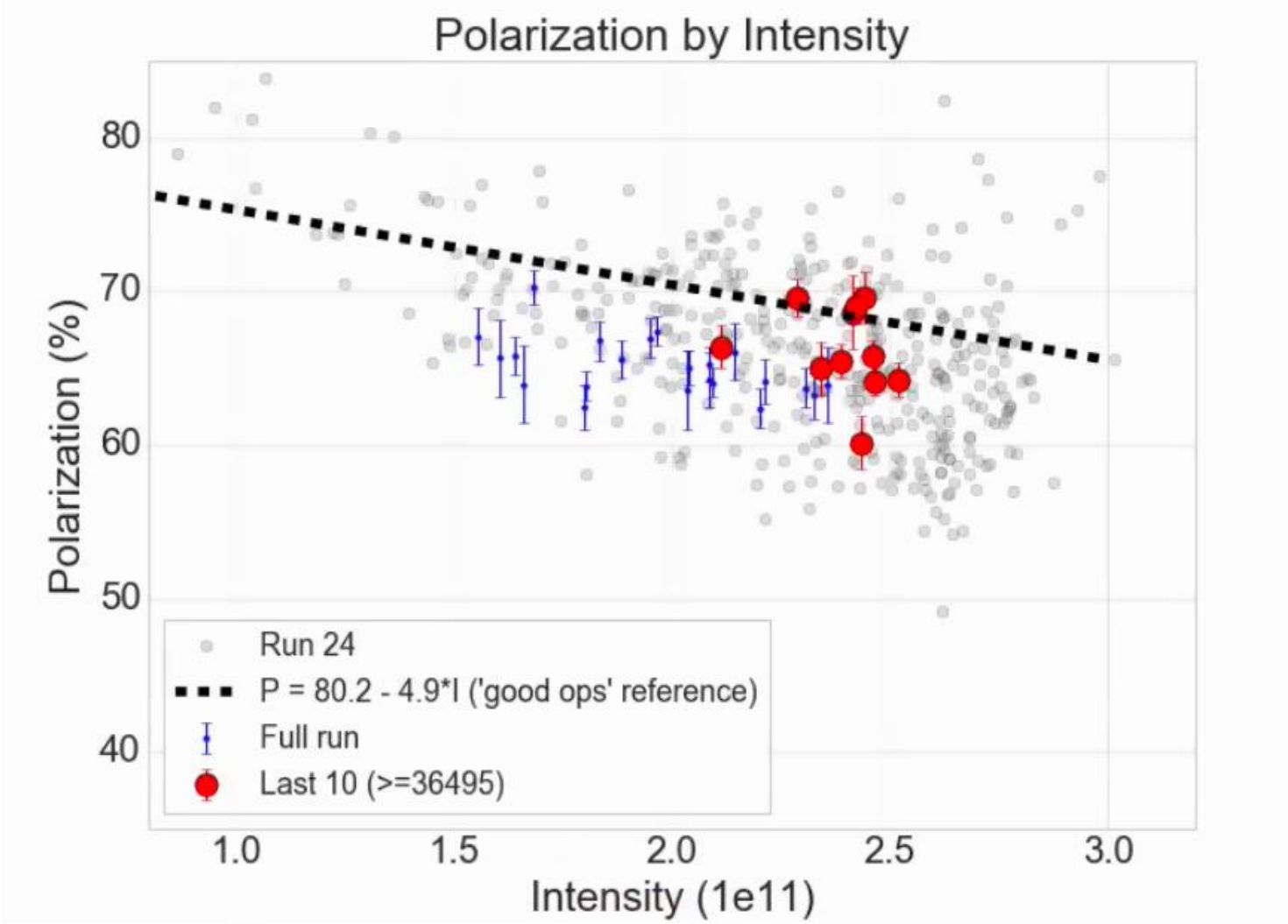
Polarization by fill: comparison to Run 24



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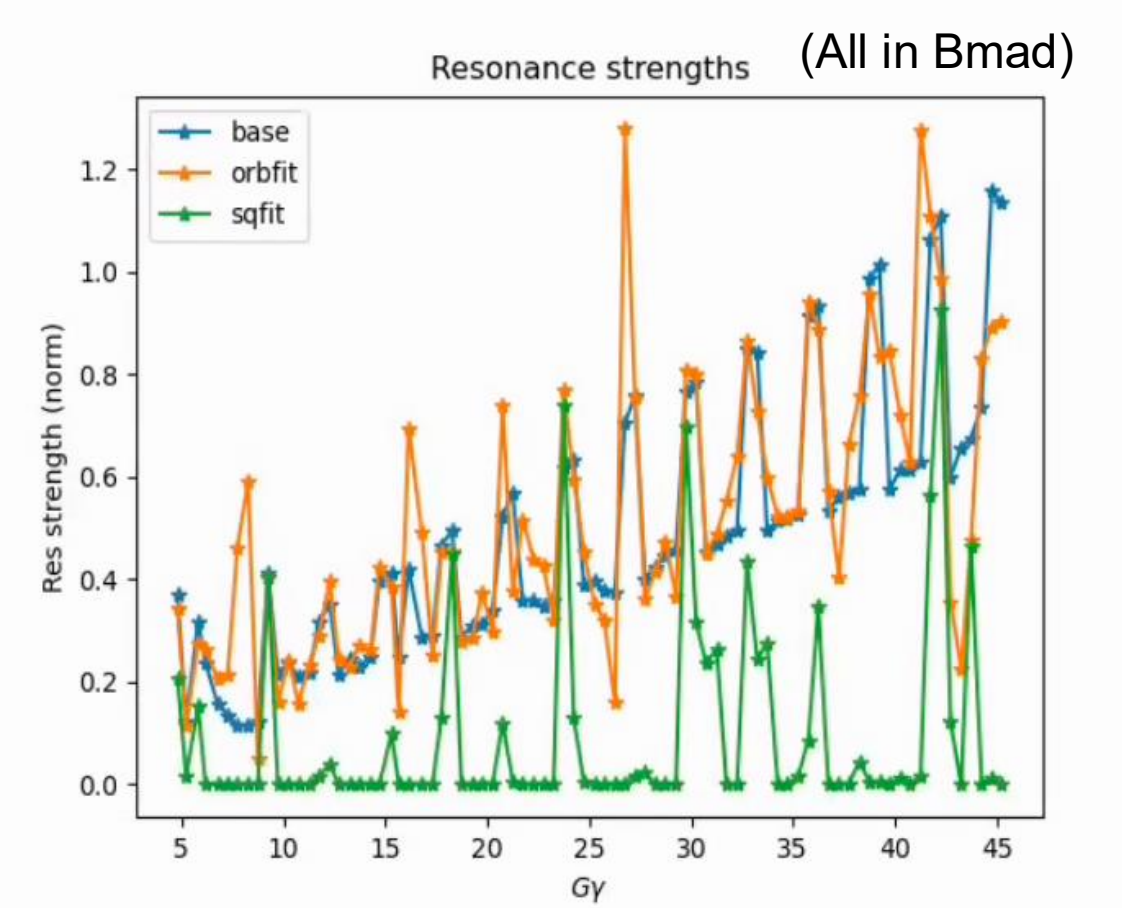
Horizontal resonance correction tests with Bmad

Moving from SPRINT based correction to more sophisticated Bmad model

Including orbit effects is important

Noon-zero closed orbit effects significantly complicates correction.

(All in Bmad)



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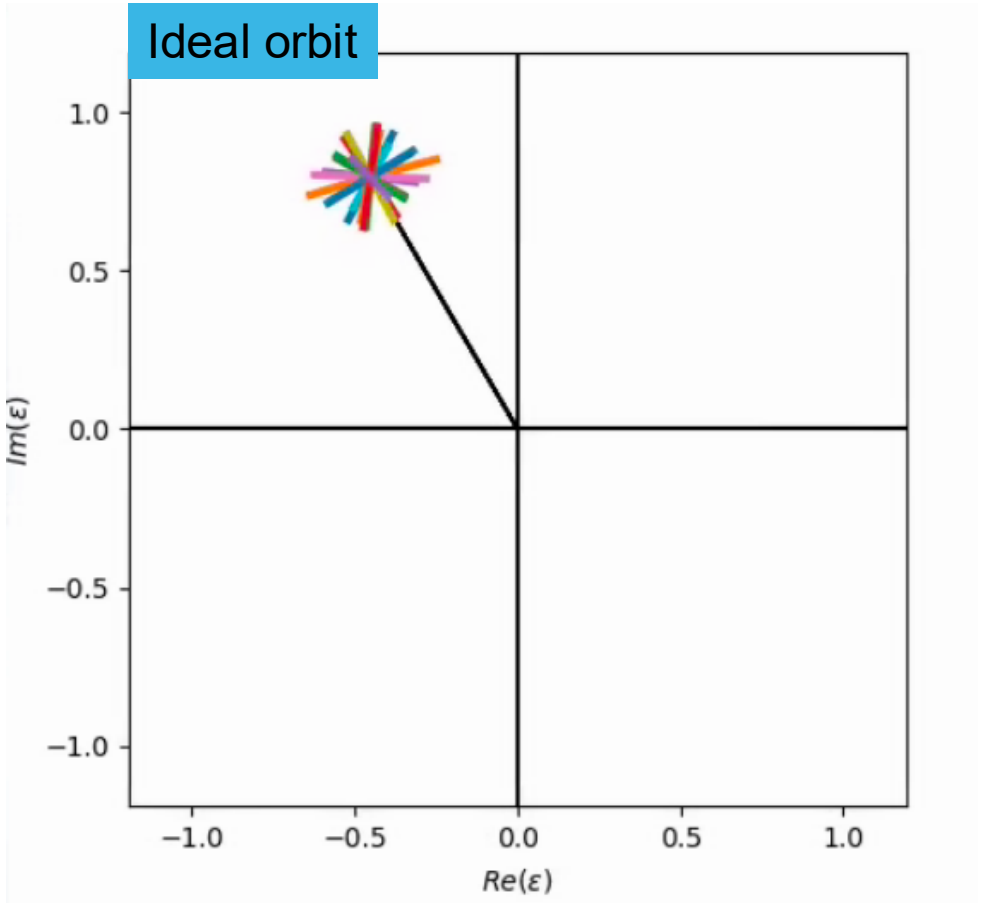
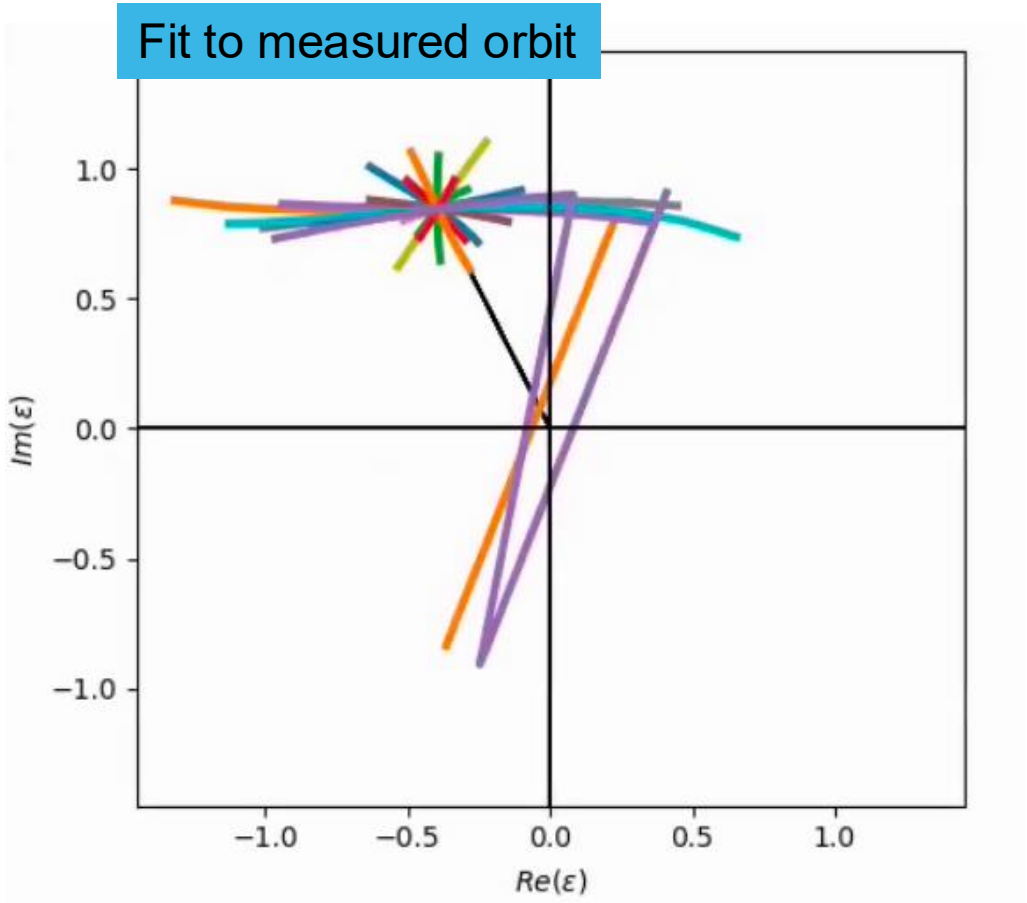
Resonance portraits with orbit feed-down

Resonance is a complex number (black line), each skew quad represents a tunable complex resonance component (colored lines)
With orbit effects: response to skew quads nonlinear, highly variable from magnet to magnet

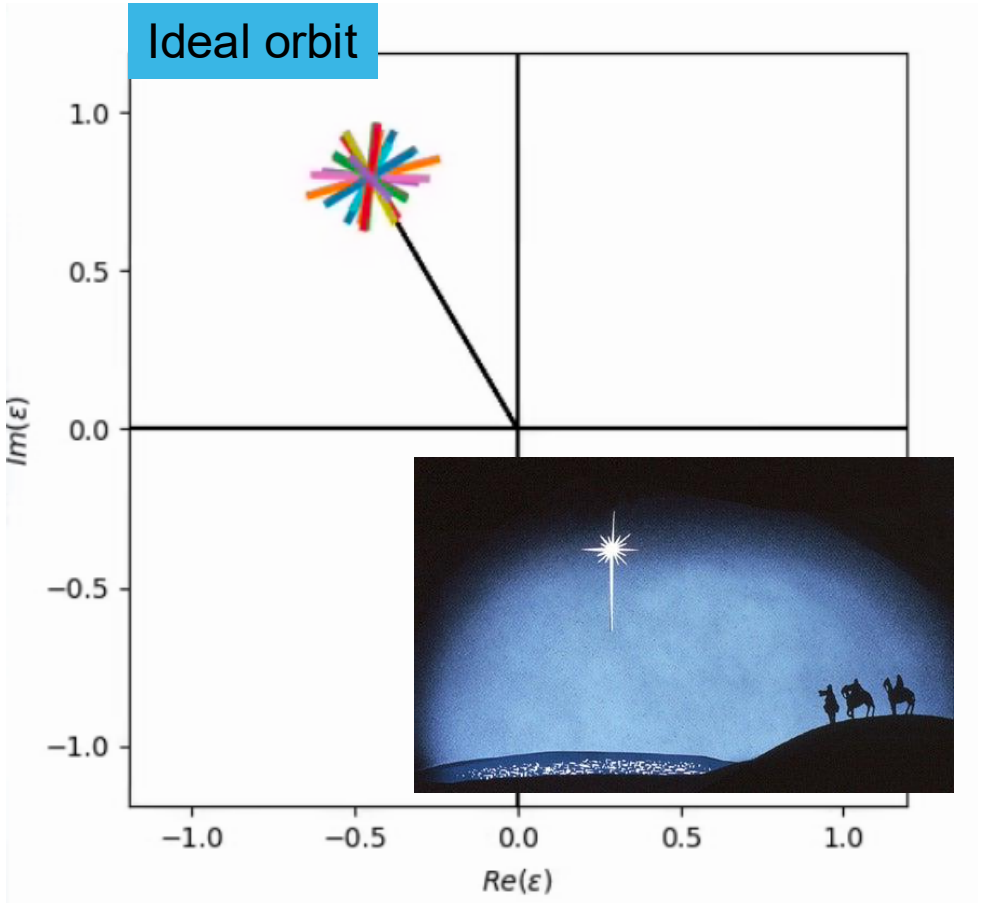


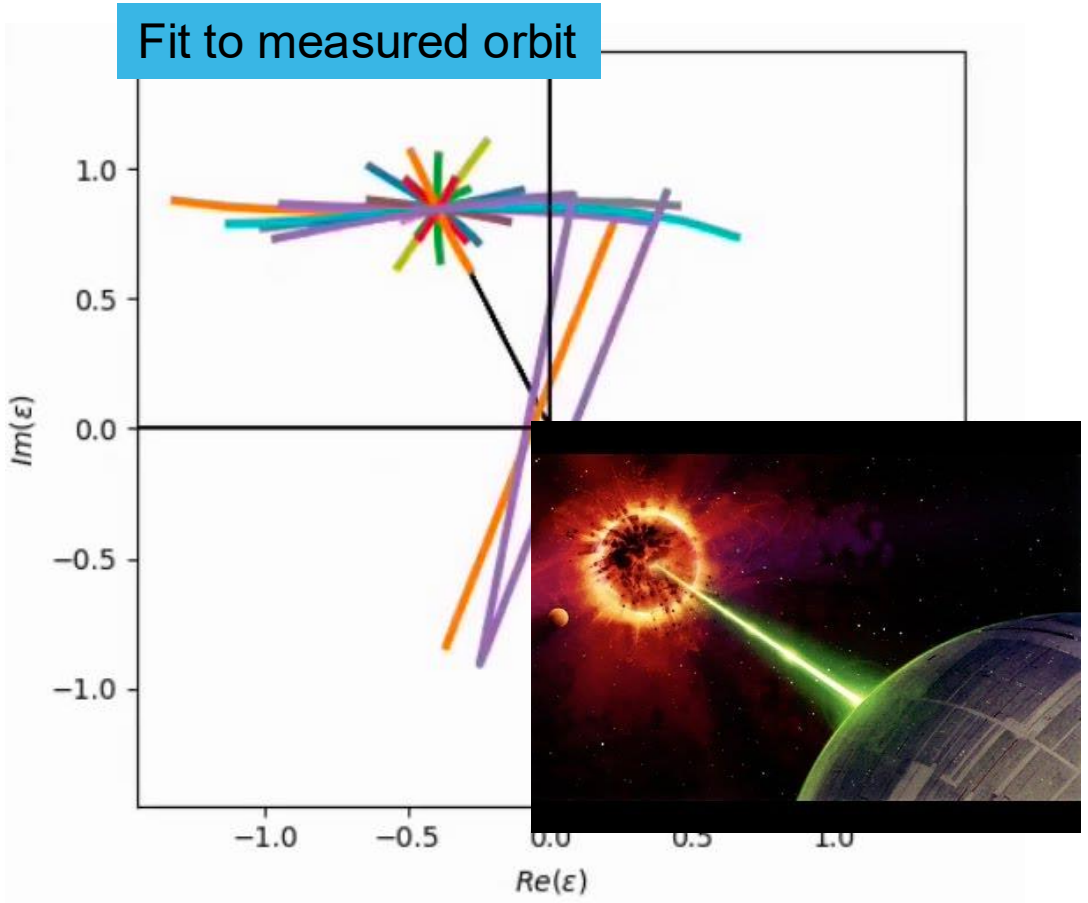


Goal for now is to avoid or account for orbit driven effects to improve correction

Resonance portraits with orbit feed-down

Resonance is a complex number (black line), each skew quad represents a tunable complex resonance component (colored lines)
With orbit effects: response to skew quads nonlinear, highly variable from magnet to magnet





Goal : More Little Star of Bethlehem ← Less Little Start of Alderaan

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