

Optimizing ATF2 with multipoles using MAPCLASS

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Multipolar errors

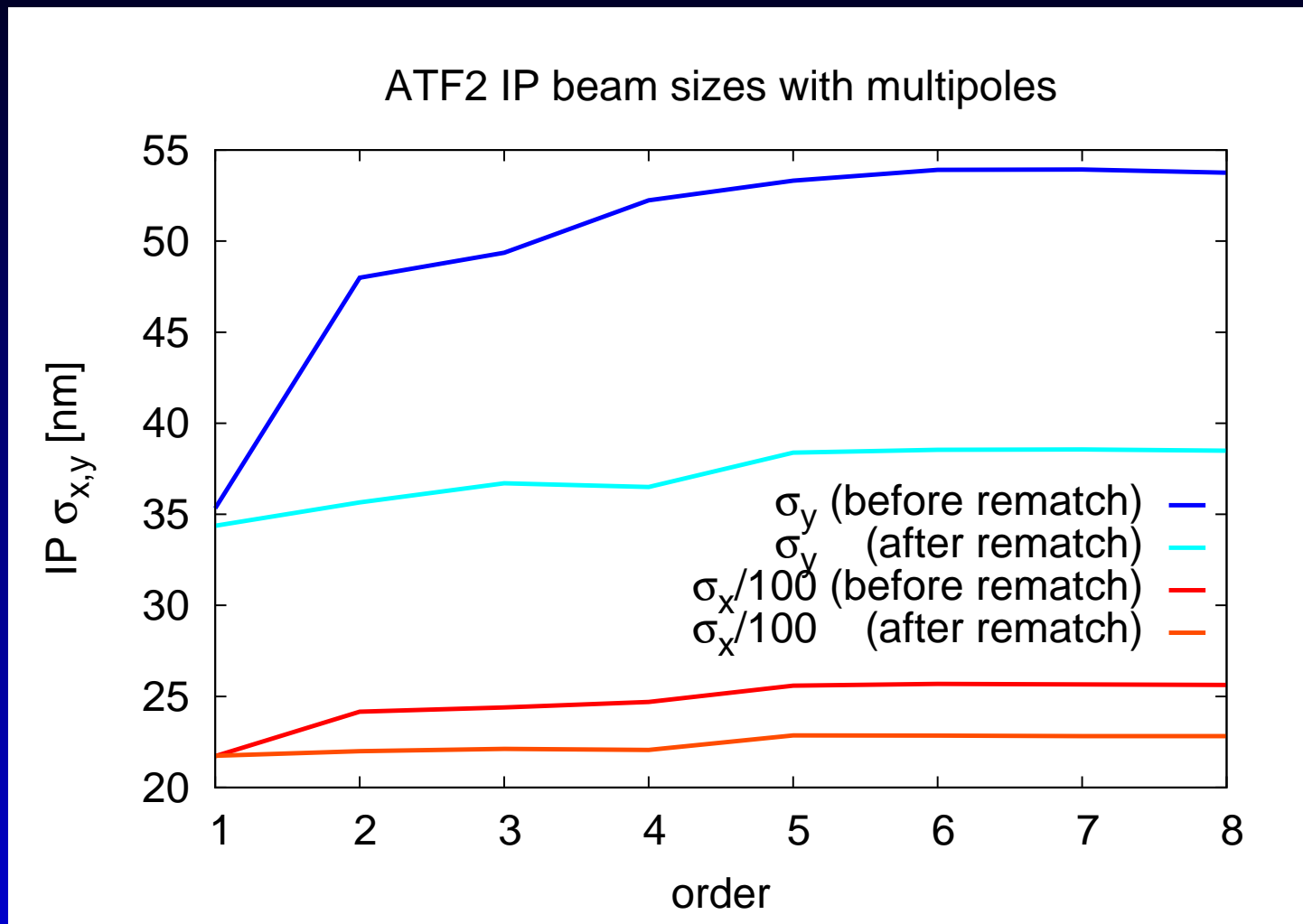
- Glen found multipolar errors create a real problem
- Can we rematch optics?
- Matching knobs: quad strengths, sextupole strengths and tilts.
- First attempt with MAPCLASS

Settings found reach 38nm

```
klsf6ff = 8.564015604
klsf5ff = -0.8108457023 !
klsd4ff = 14.92233907
klsf1ff = -2.549000405
klsd0ff = 4.367344565
sf1tilt = -0.0006514444947 !
sd0tilt = -0.001280764859 !
```

```
klqf5ff = 0.3760683487
klqd4ff = -0.2968406921
klqf3ff = 0.5531909983 !
klqd2bff = -0.198360278
klqd2aff = -0.289811683
klqf1ff = 0.7417848785
klqd0ff = -1.363966125
```

IP σ before and after rematching



Dodecapolar component remains in both planes.

Do we need a dodecapole? octupole?

ATF2 ultra low betas ???

- Aberrations will be more severe
- Need to run MAPCLASS for the various cases
- Tuning might be affected too...