Improving EP confinement for Andrew Ware's 5FP config

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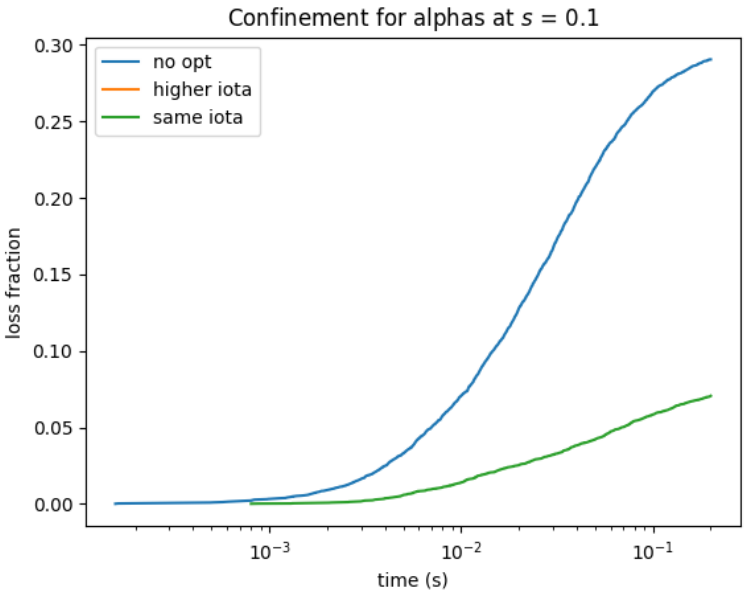
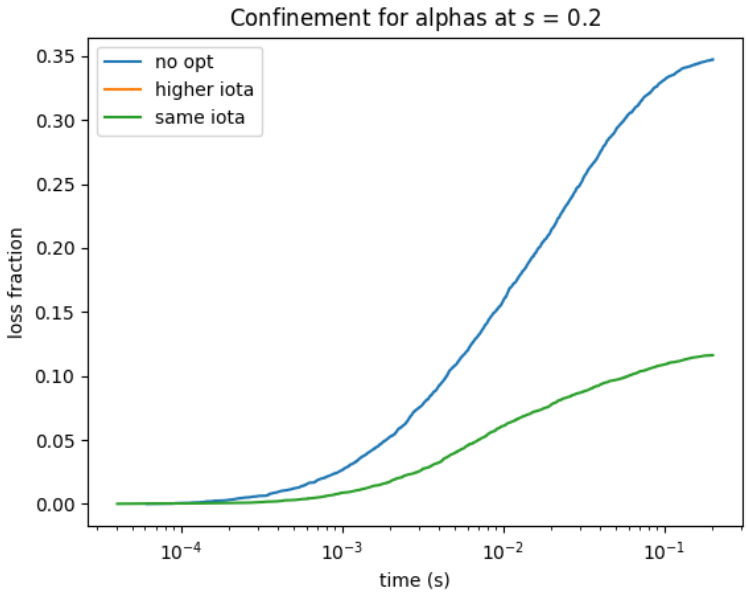
Try to improve energetic particles using Γ_c and QHS

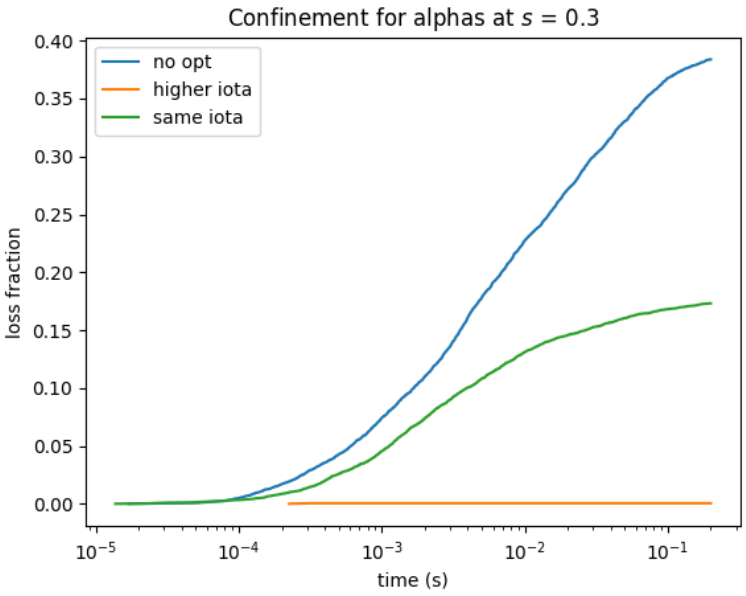
- As before, scale to ARIES volume and field strength
- Initial configuration is very poor with regard to EP and QHS metrics
- Large improvements available with QHS improvements
- However, this changes rotational transform away from target value
- No good improvements yet with same rotational transform

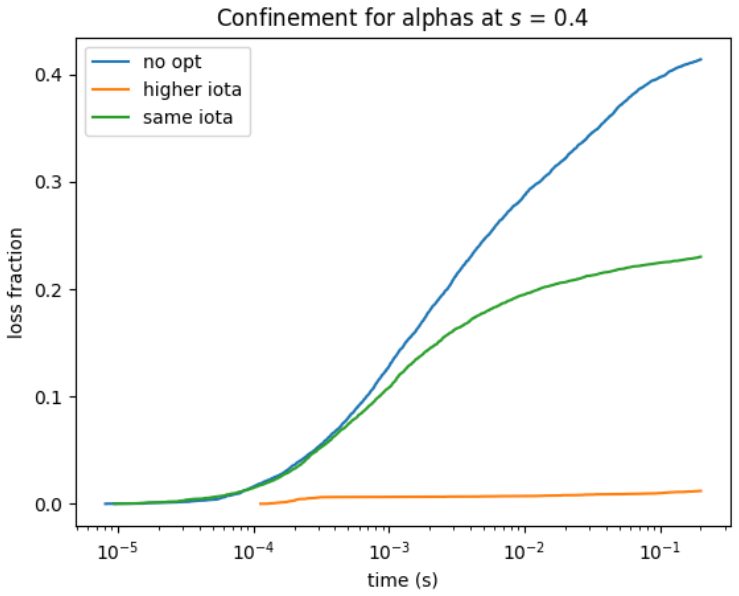
Loss for alphas (1)



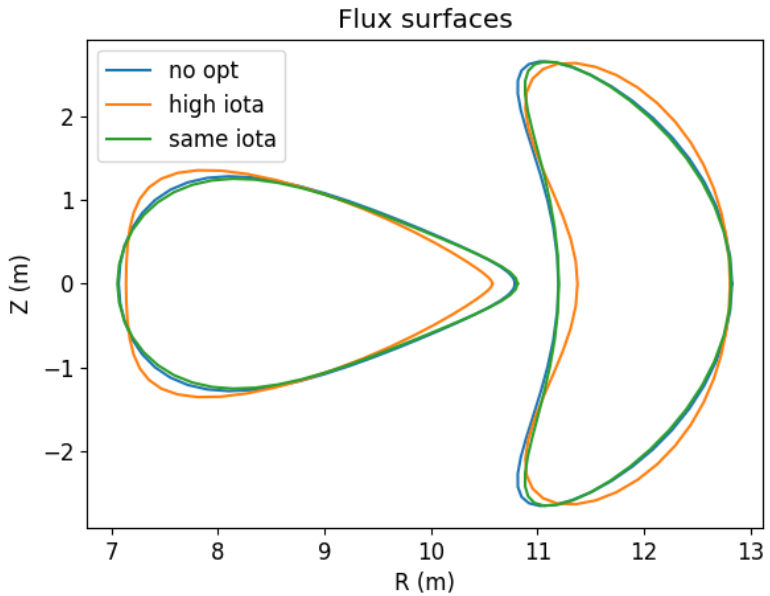


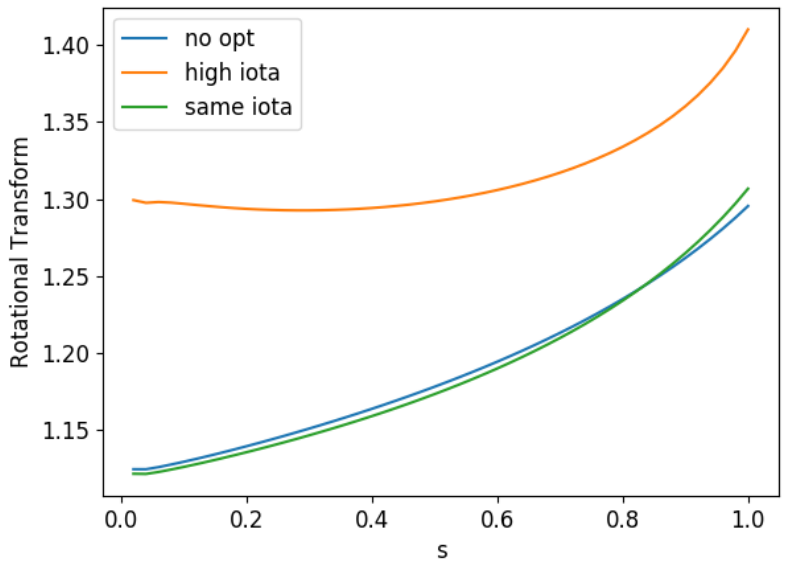
Loss for alphas (2)



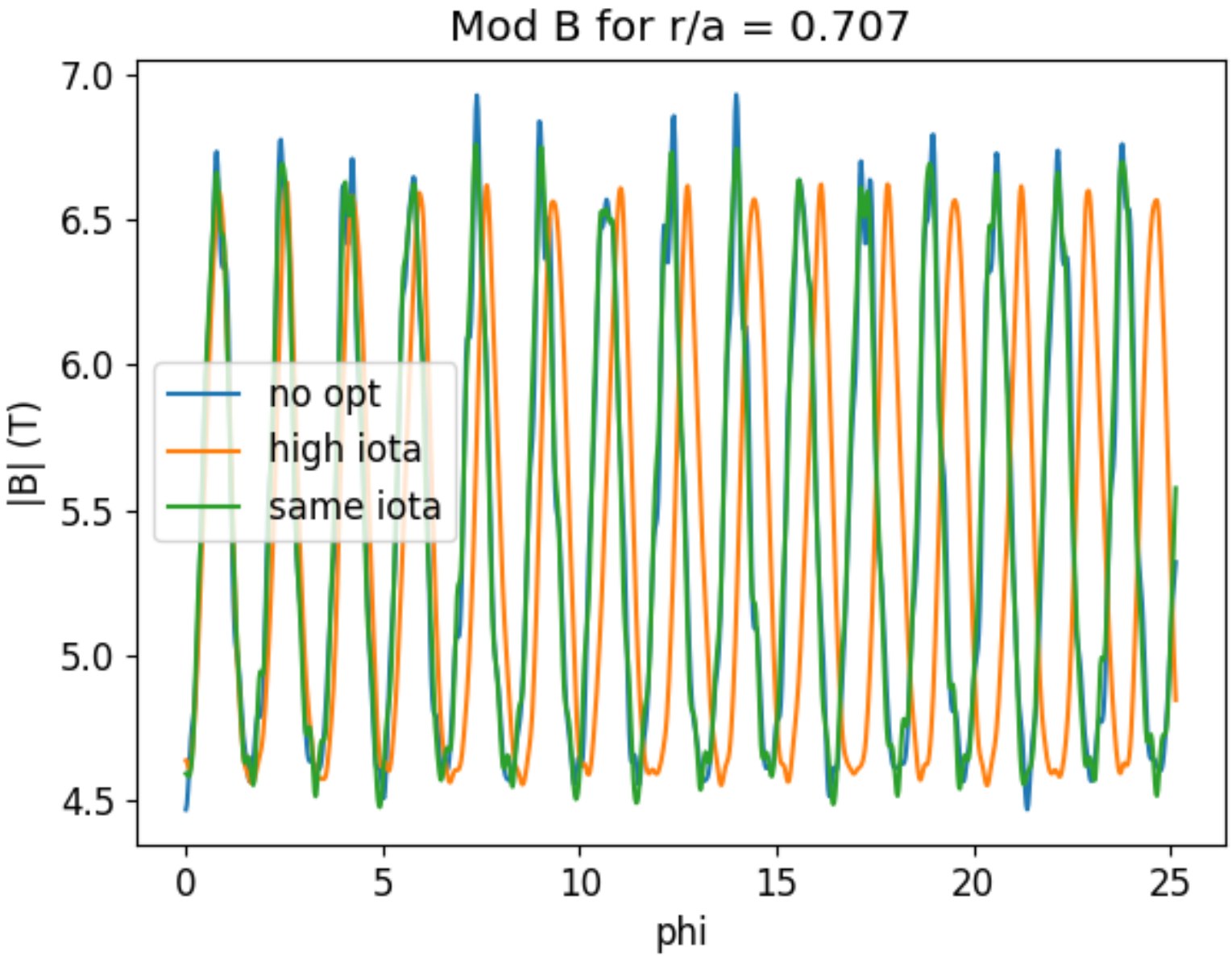


High iota configuration also has different flux surfaces

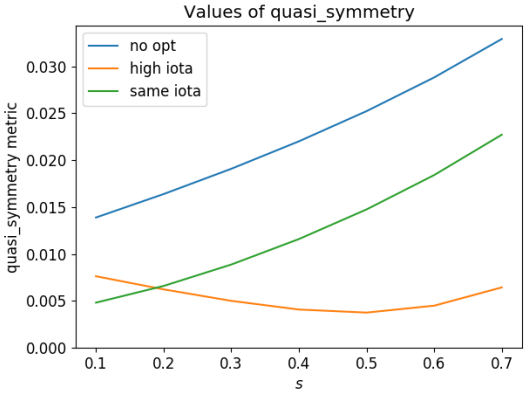


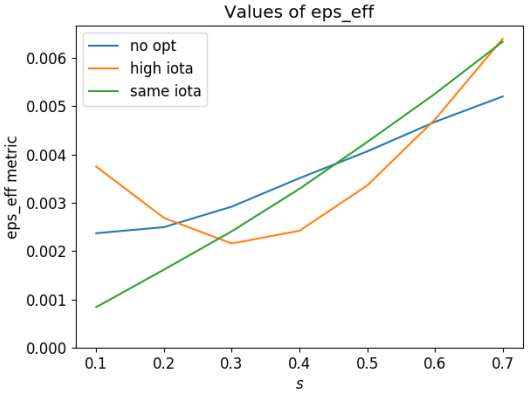


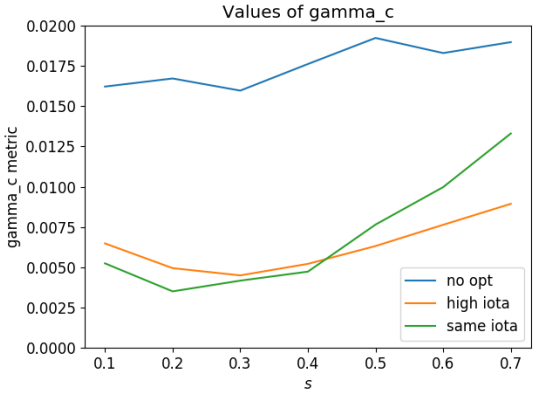
$|B|$ profile is clearly improved in high iota



QHS metric clearly improved in high iota (from s=0.2 outwards)

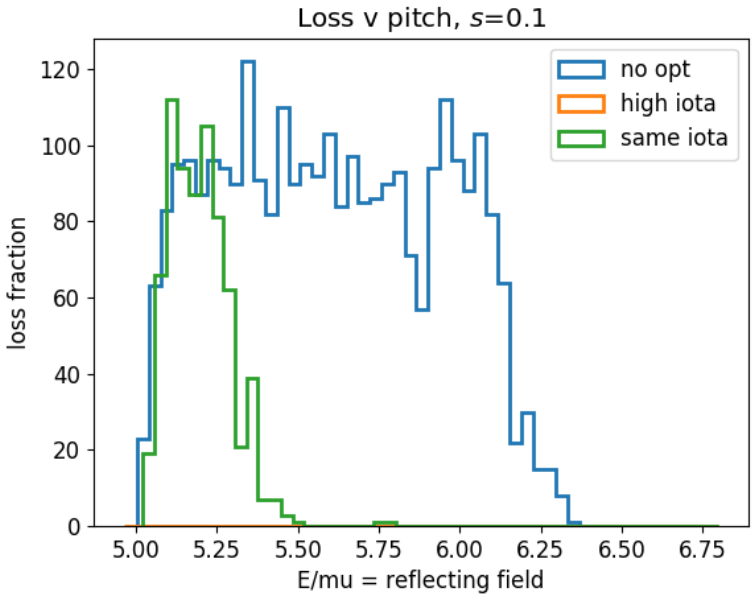


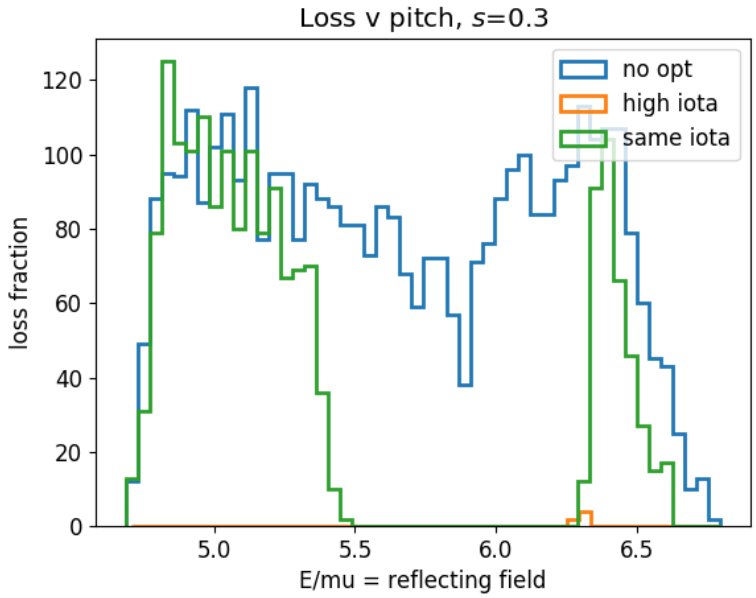




Γ_c very similar in both optimized configurations

Losses mainly appear in deeply trapped particles (!)





Same iota configuration improves Γ_c but improves QHS less.
Removed losses at trapped-passing boundary, but significant losses of deeply trapped particles

Good configuration achieved with higher iota

- Need to try to improve lower iota configurations
- Γ_c metric very clearly improves losses at trapped-passing boundary, but not deeply trapped particles
- Provides possible mechanism for improving deeply trapped losses separately
- This configuration may yield some very interesting results