



Plasma edge / divertor modeling

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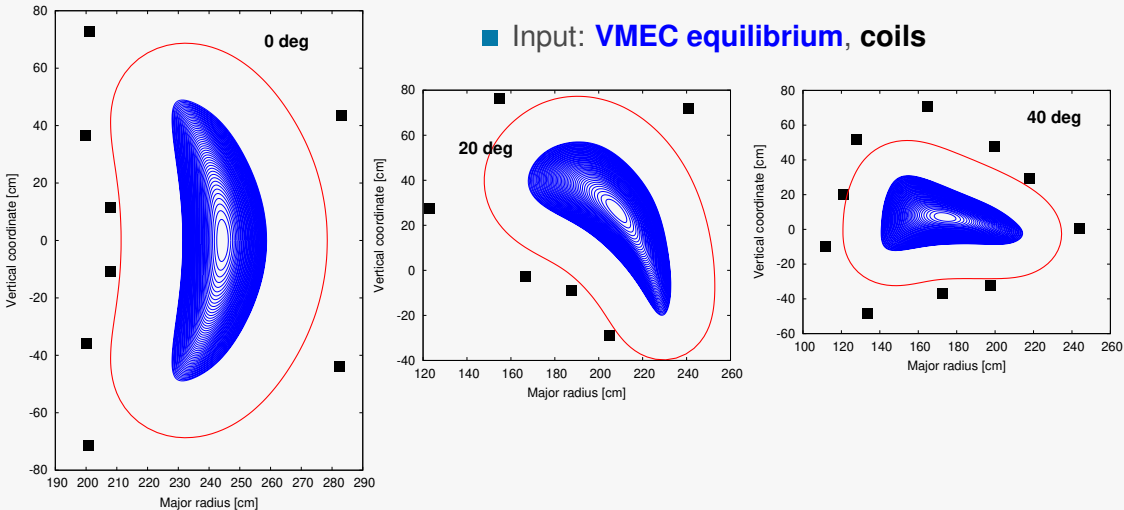


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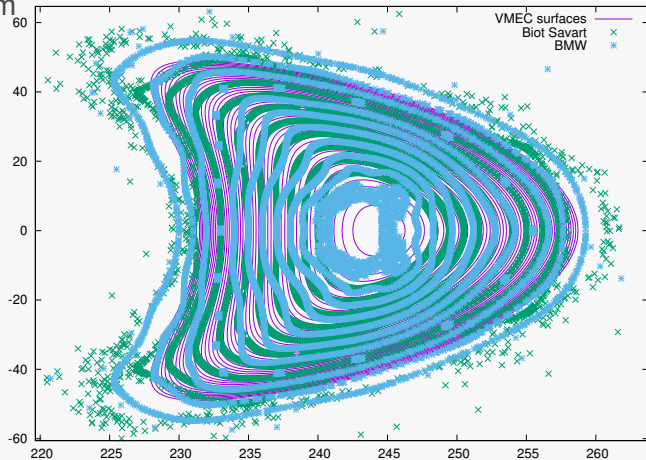
Challenge: connect equilibrium model (VMEC, flux coordinates) to edge/divertor model (EMC3-EIRENE, real space)



BMW calculates volume integral over currents in VMEC domain to calculate the vector potential in real space



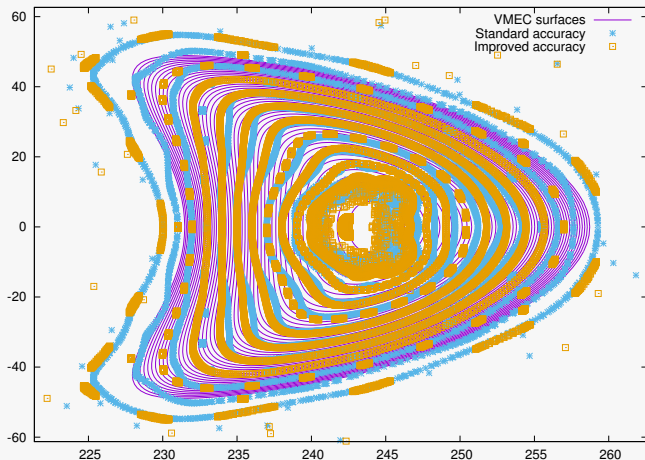
- VMEC $\rightarrow$ BMW $\rightarrow$ FLARE $\rightarrow$ EMC3-EIRENE, 1st step: check Biot-Savart vs. VMEC vacuum



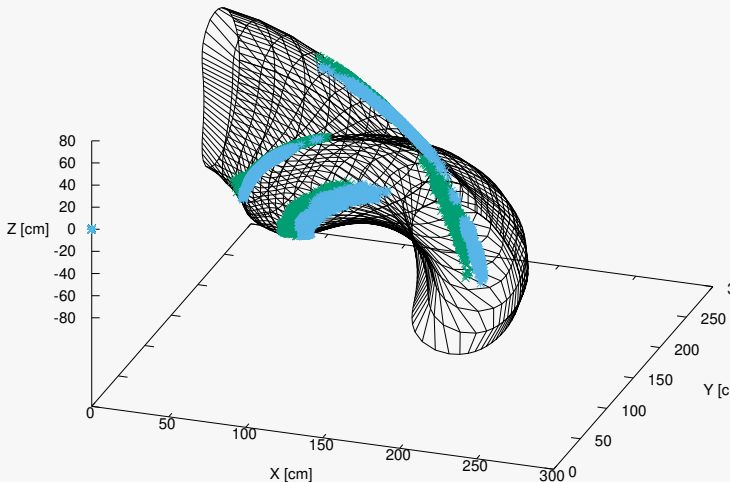
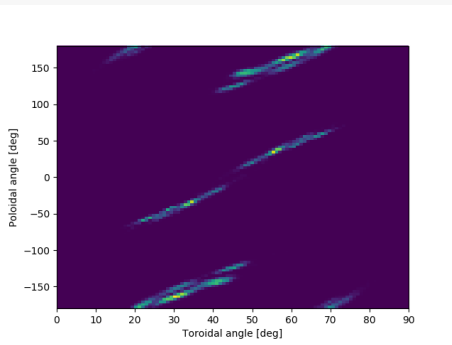
Impact of numerical parameters needs to be analyzed



- Number of VMEC surfaces: $65 \rightarrow 121$, residual force-balance tolerance: $10^{-10} \rightarrow 10^{-15}$



Field line diffusion calculations show helical magnetic footprint (as expected)



Moving forward:

- Continue with this configuration (vacuum vs. finite beta), or wait for new configuration without core plasma issue?
- Run EMC3-EIRENE for firstwall-only configuration as reference
→ probably requires to set firstwall closer to the LCFS
- Add (initial guess for) divertor plates and run EMC3-EIRENE for that