Kinetic neoclassical XGCa modeling shows significant impact of kinetic effects on SOL plasma dynamics

- **Significant SOL parallel ion flows** ($M_i \sim 0.5$)
  - Experiments show LFS midplane flows near $M_i \sim 0.5$
  - Key is inclusion of particle drifts and self-consistent $E_r$ calculation

- **Ion pressure has large variation along flux surface** in SOL, mainly due to $T_i$
  - Peaking near the LFS midplane suggests ion orbit effects

- **Enhanced sheath potentials** due to non-Maxwellian features in ions and electrons

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M_{i||} = \frac{V_{i||}}{c_s}
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