TH/P2-27: A New Understanding of the Bootstrap Current in Steep Edge Pedestal

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- The bootstrap current in the H-mode pedestal has been studied with the global, gyrokinetic-neoclassical code XGCa.
- Contrary to conventional neoclassical theory, the trapped particle contribution to the bootstrap current can be significant in realistic tokamak geometry, especially in spherical tokamaks.
- A new bootstrap current formula valid for the H-mode pedestal has been developed based on numerous XGCa simulations in different realistic, diverted tokamak equilibria. It includes corrections for large trapped particle fraction and finite orbit-width effects.