Wide divertor heat-flux width λ_q in ITER from turbulence bifurcation across separatrix

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- XGC predictions for λ_q has been well-validated against representative DIII-D, C-Mod, NSTX, and JET data: neoclassical effect is dominant
- The same XGC predicts 6X greater λ_q in full-current (15MA) ITER than extrapolation (λ_q^{Eich}) from present tokamaks:
  - turbulence effect is dominant in 15MA ITER
- λ_q on 1st phase ITER at 5MA agrees with λ_q^{Eich}

  → Wider λ_q^{ITER}(15MA) is not a pure size effect, but a ρ_i/a effect.
- Turbulence across separatrix bifurcates from JET(4.5MA) to ITER(15MA)
  - from "blobs" to "streamers," and
  - from high to low ExB shearing rate.
  - Strong "streamer transport" is seen across separatrix in ITER(15MA) → wider λ_q