Effect of magnetic field structure on electron internal transport barrier and its role for the barrier formation in Heliotron J

EX/P3-2

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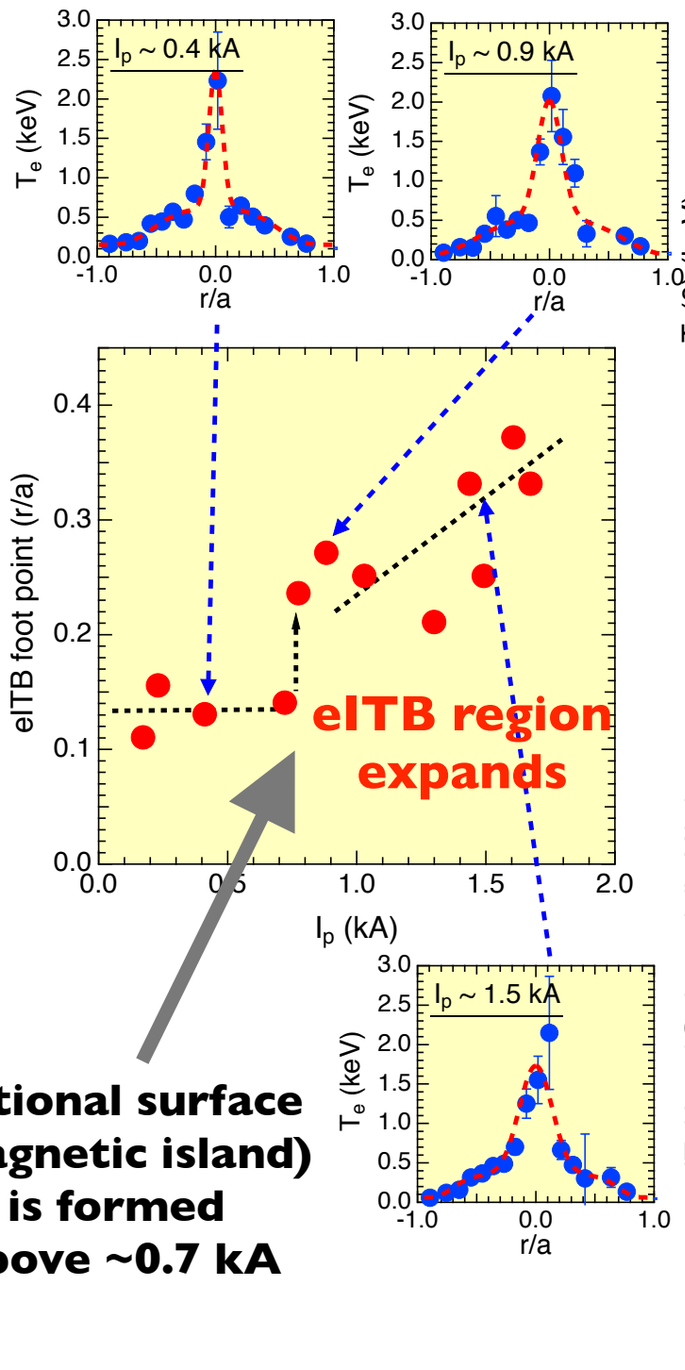
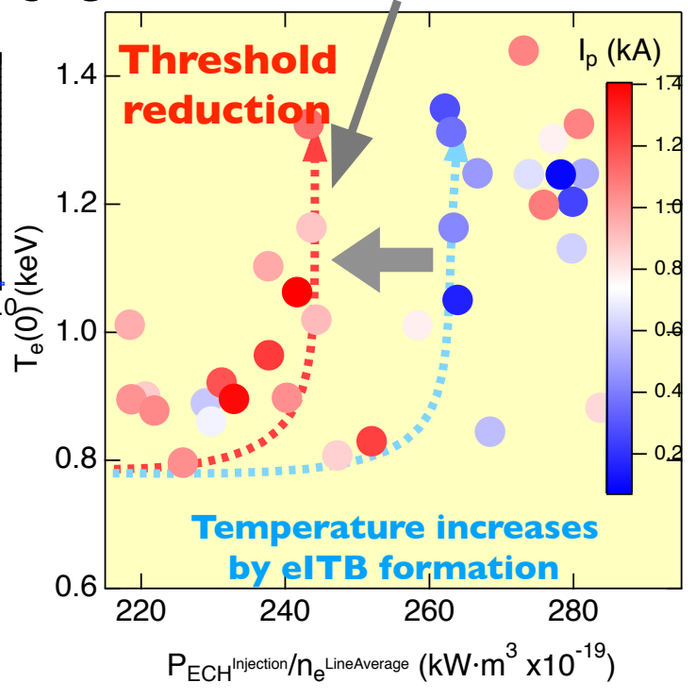
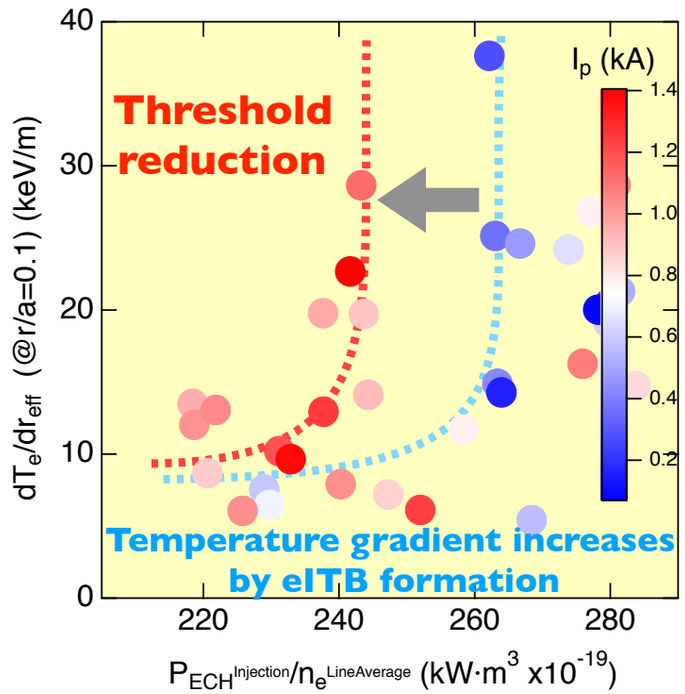
(1)



Rational surface (magnetic island) is formed above ~0.7 kA

(2) **Rational surface (magnetic island) is formed above ~0.9kA.**





Summary

The Electron internal transport barrier(eITB) formation is determined not only by the neoclassical transport through the helical ripple but also by the existence of low-order rational surface.

(1) Although the eITB of the helical plasma can be formed without the low-order rational surface, **the rational surface which is made by the current increase can expand the improved confinement region.**

(2) **The power threshold for the eITB formation decreases due to the existence of the rational surface or the magnetic island on the eITB formation.**