

# MHD events and transport barriers in TJ-II plasmas

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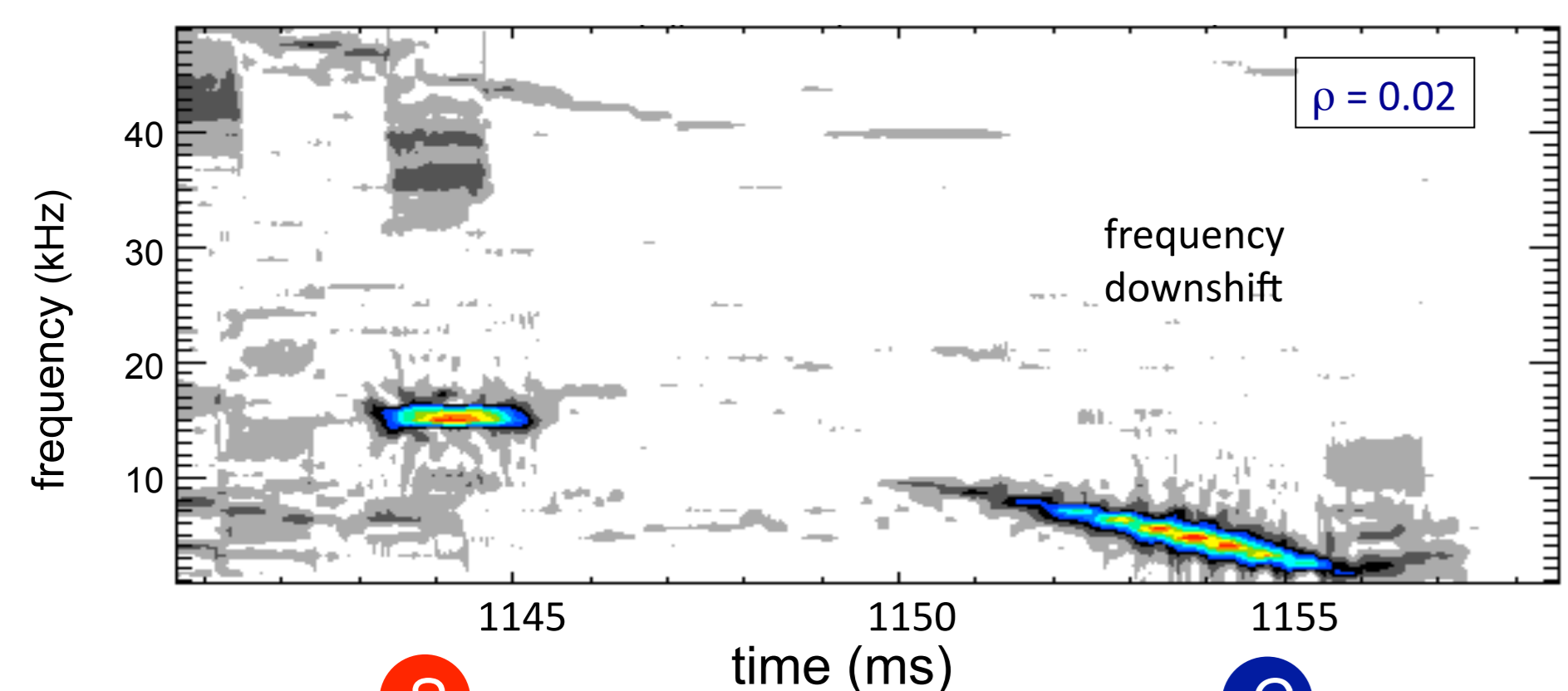
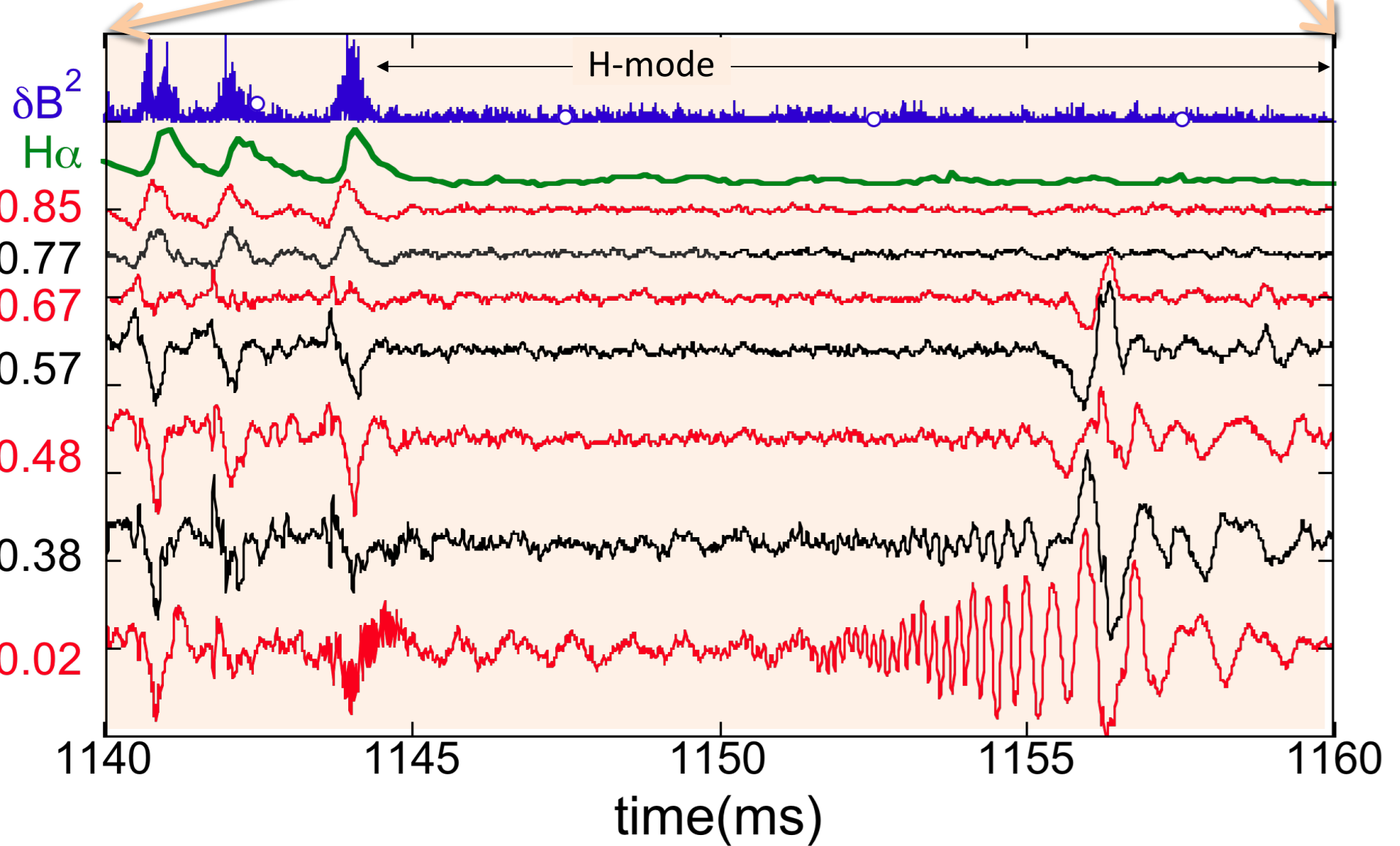
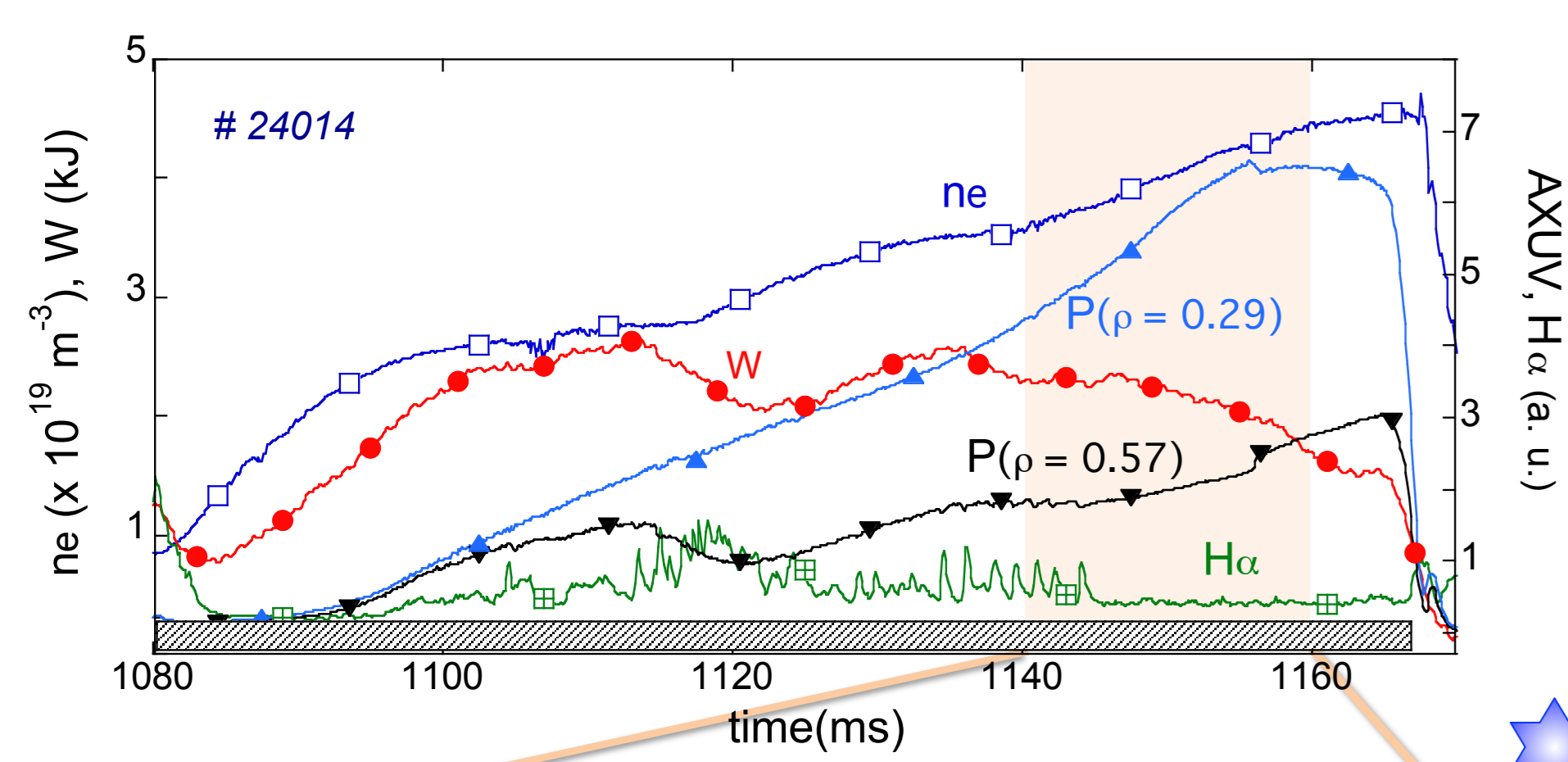


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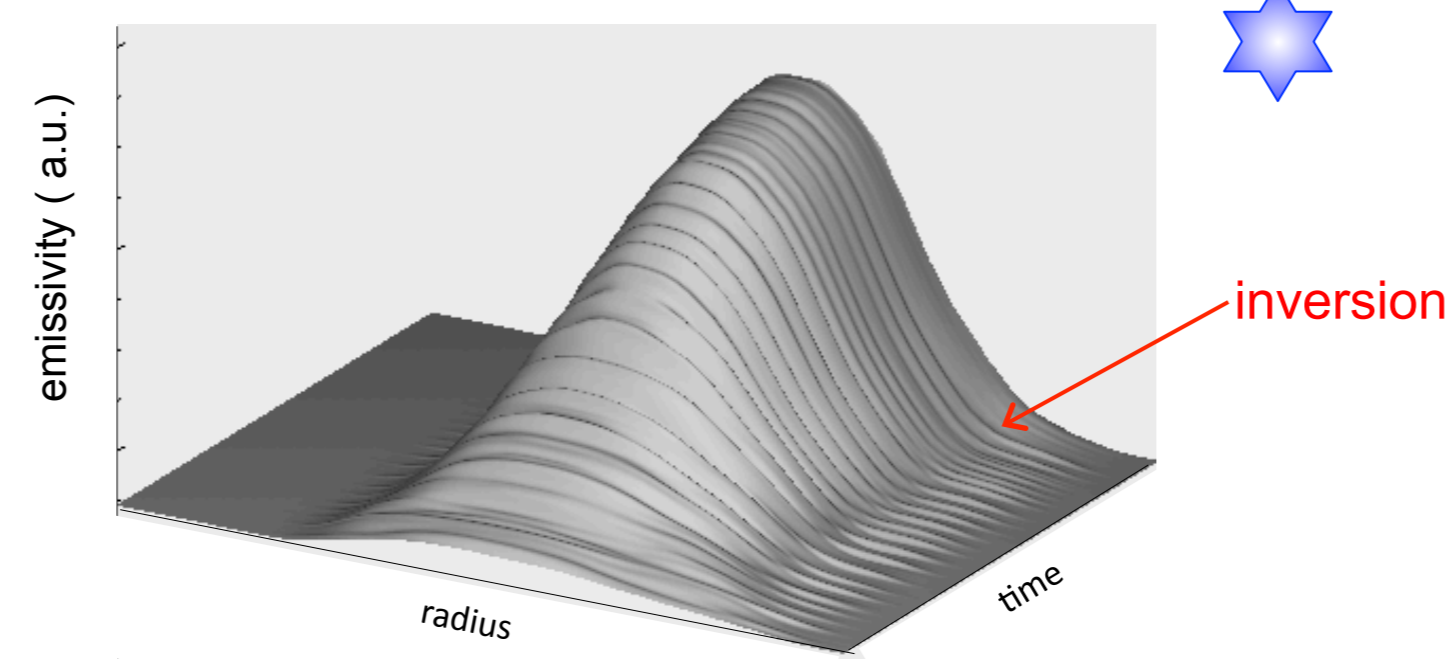


- ◆ In TJ-II NBI plasmas, MHD instabilities are frequently observed
- ◆ Plasma parameters enable bolometry diagnostic to probe simultaneously the whole plasma.
- ◆ Behavior of global radiation profiles evidences the existence of transport barriers, transient or permanent, at the location of low order rational surfaces.
- ◆ MHD events accompany particle bursts, profiles redistribution and barrier destruction.
- ◆ When properly located, magnetic resonances propitiate the L-H transition.

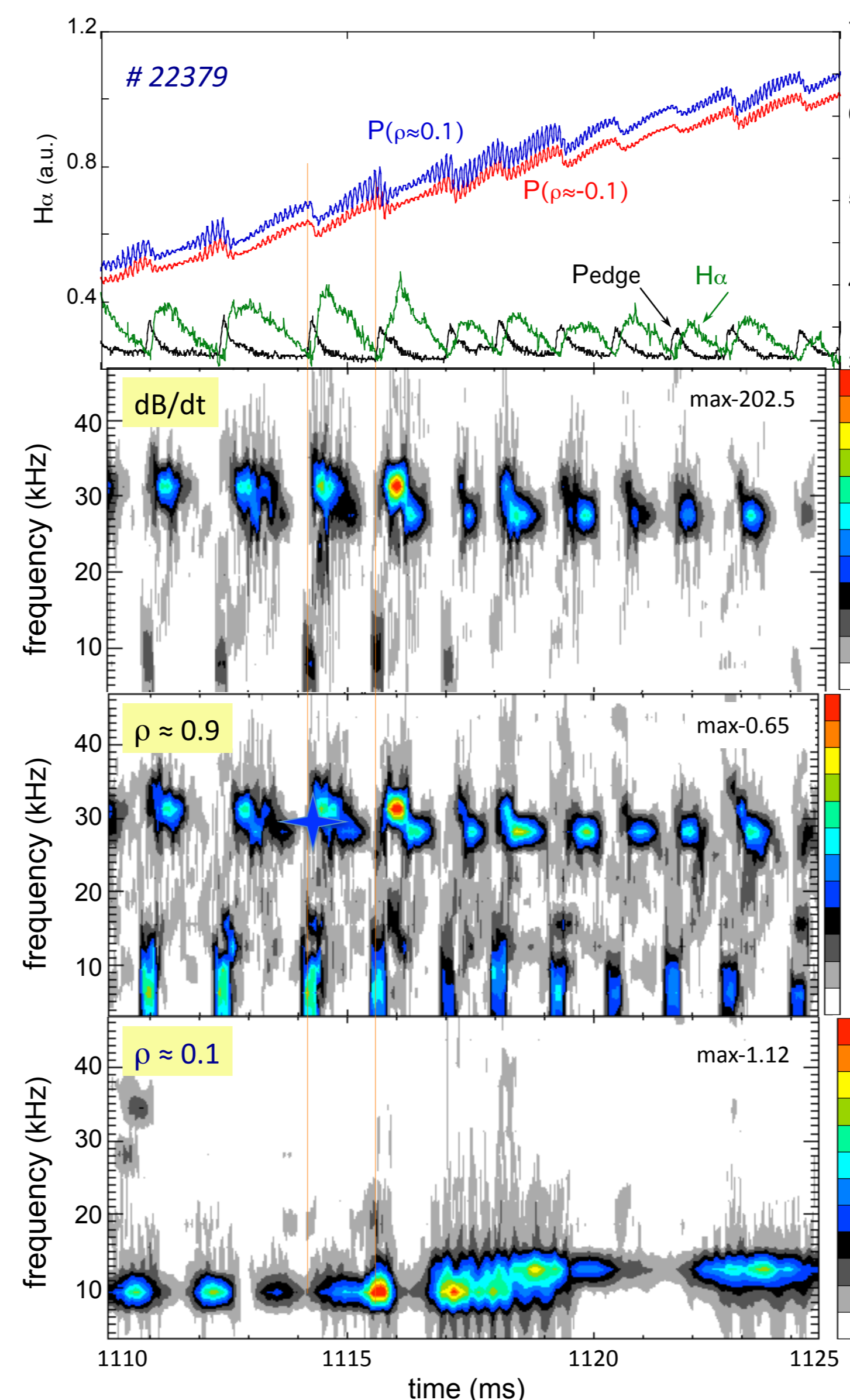
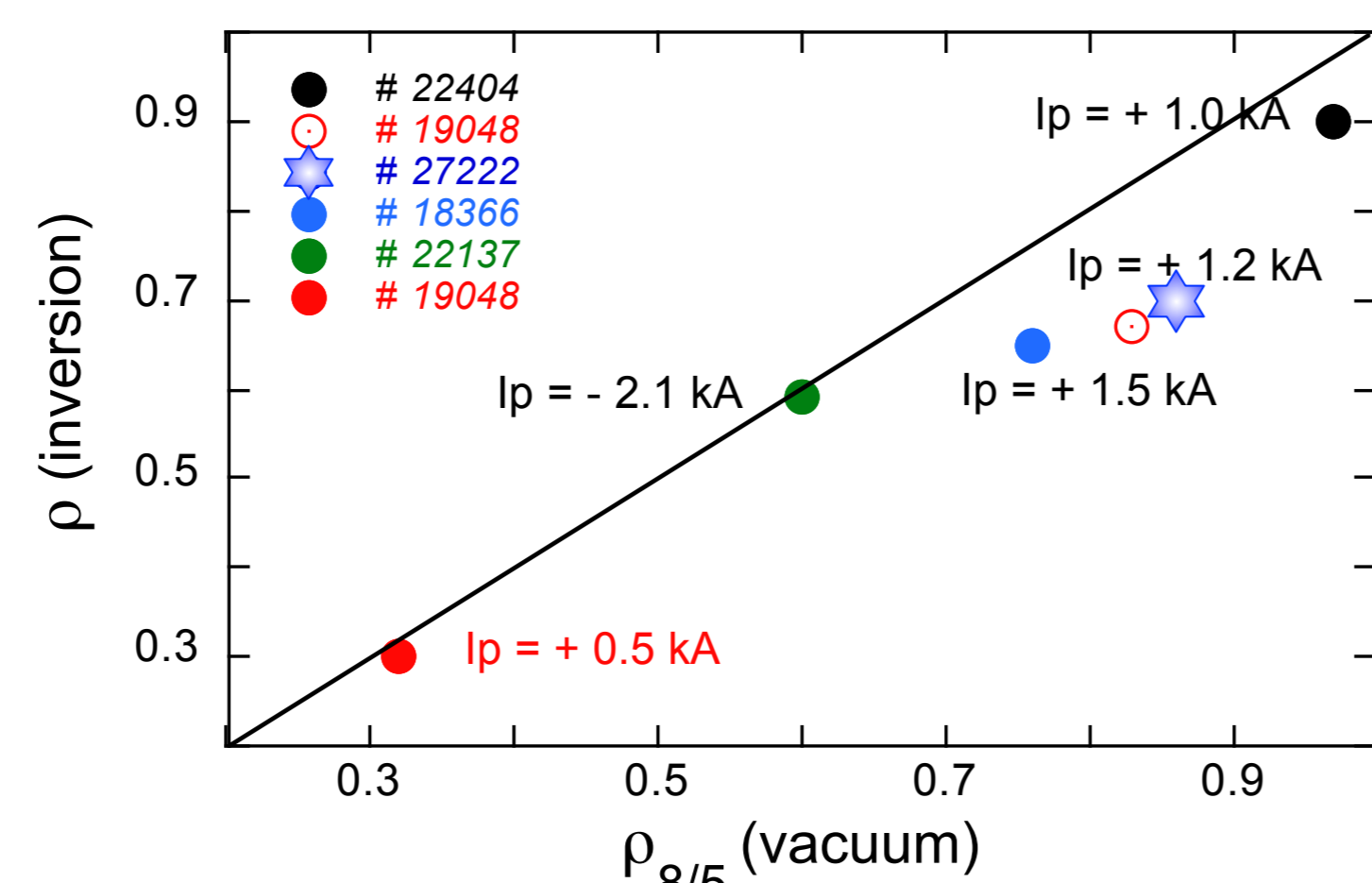


## S SAWTOOTH-like activity

At moderate densities, sawtooth-like events develop



Magnetic configuration dependence of the sawtooth-like inversion radius

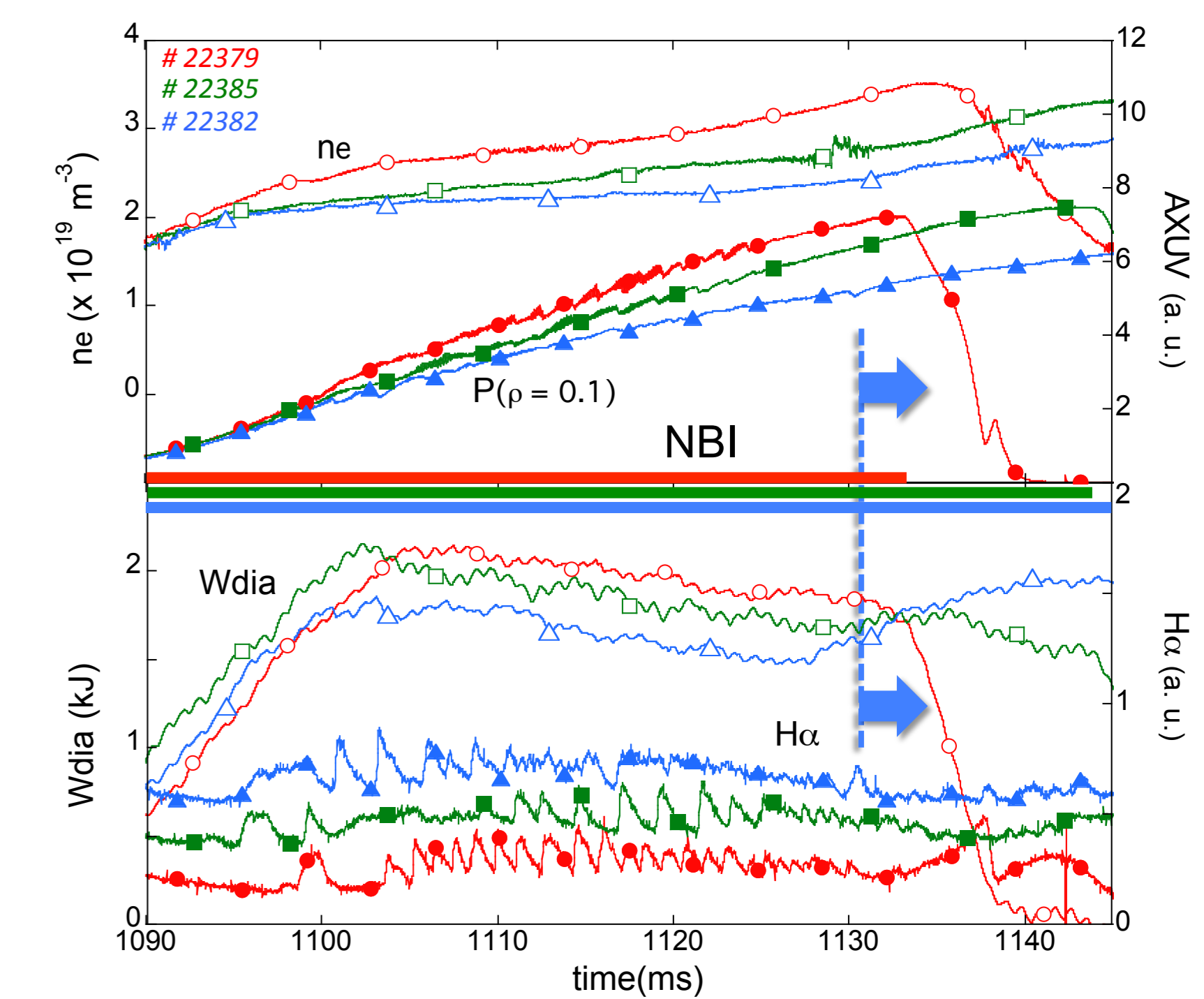


Pulses of particles reach the edge

A coherent mode located close to  $\rho_{8/5}$ , the radial position of the 8/5 rational surface, is excited

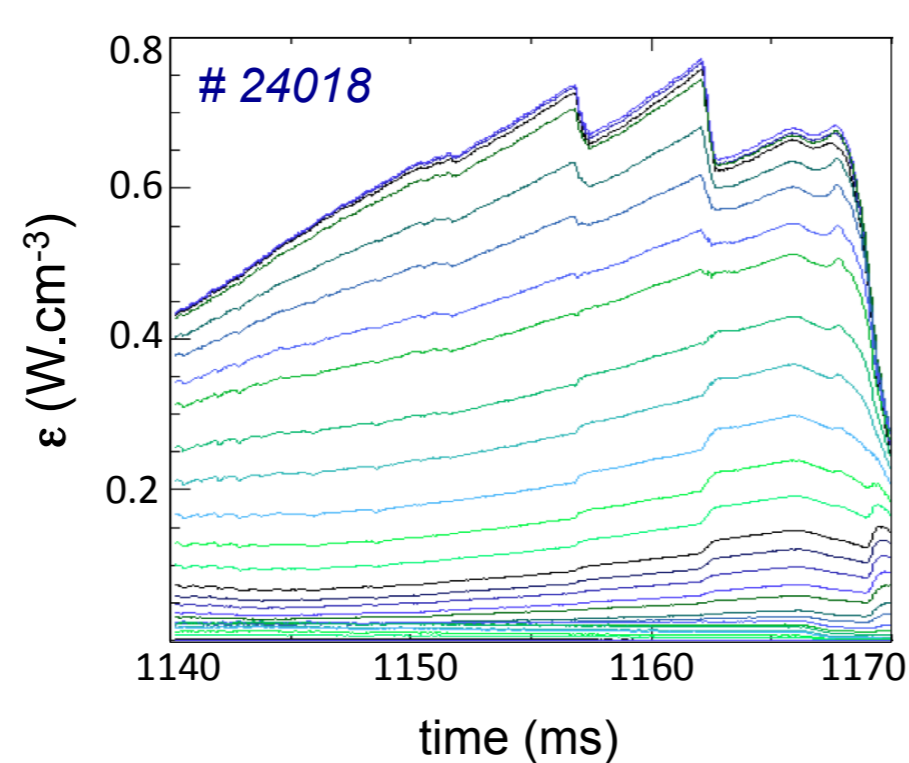
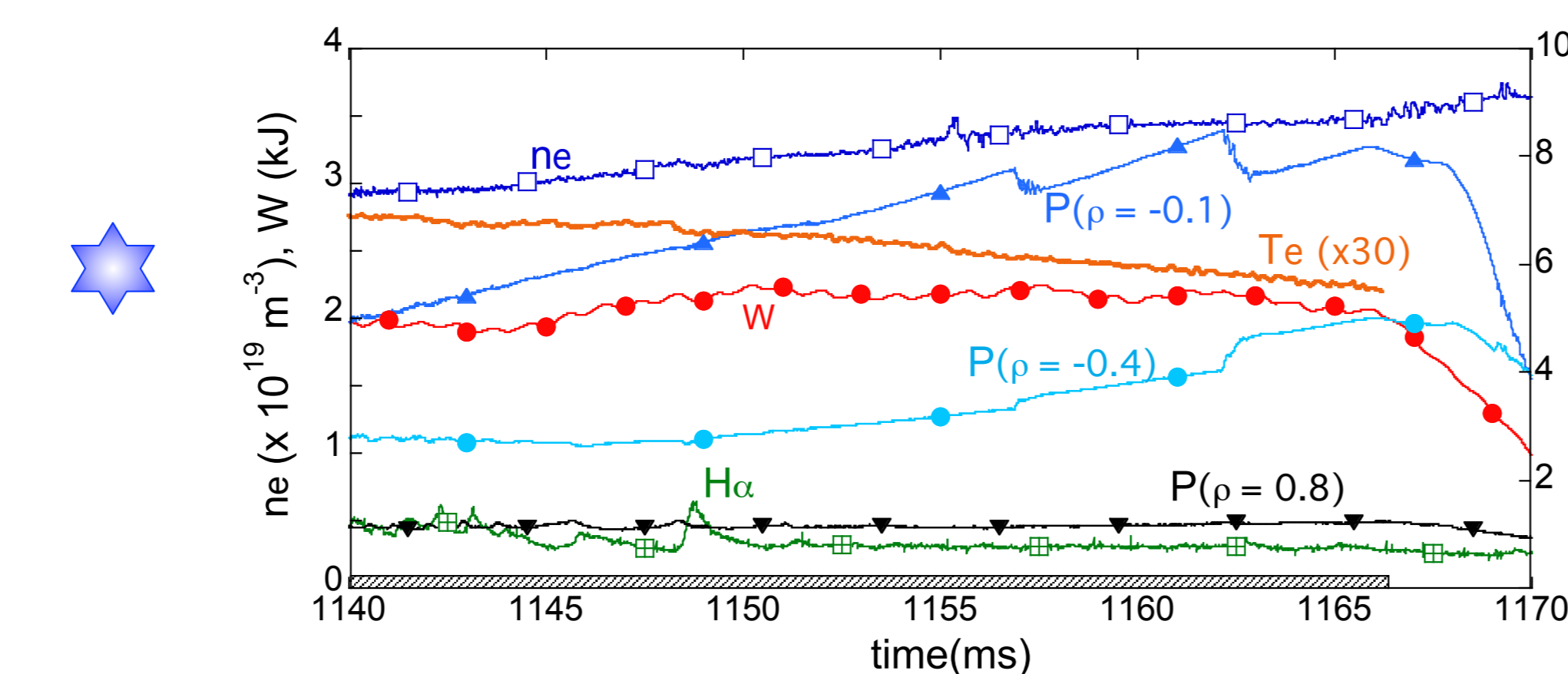
Coherent MHD mode at the plasma core.  $n = 1, m = \text{odd number}$

A case of study: MHD activity in a configuration prone to L-H transition



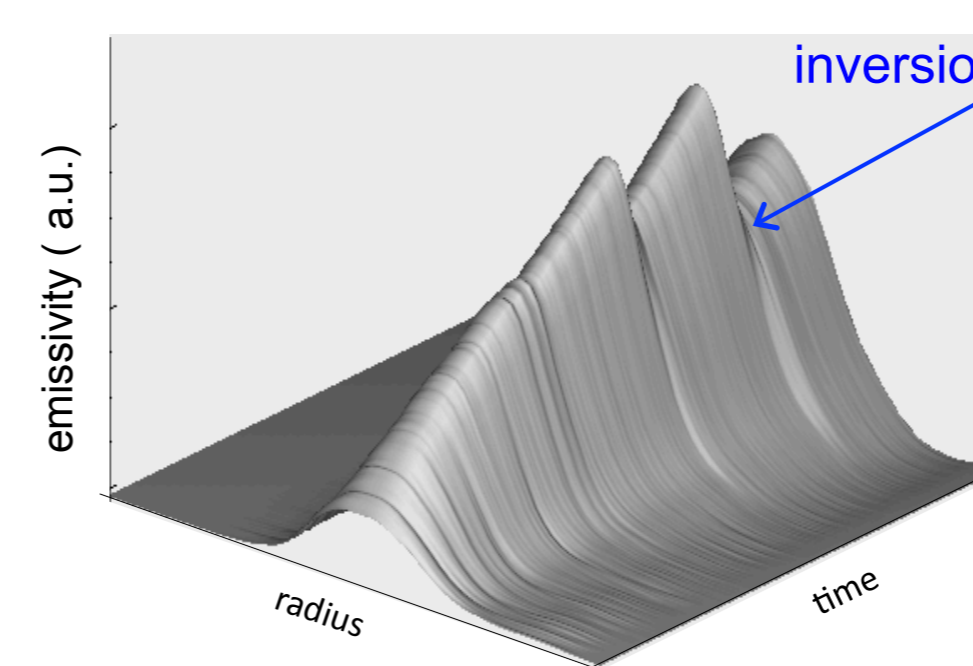
## C INTERNAL CRASH

For plasma density close to the limit, particles are expelled from the core



Downshifting of the core MHD mode

Particle pulse stops at a barrier



Magnetic configuration dependence of the internal crash inversion radius

