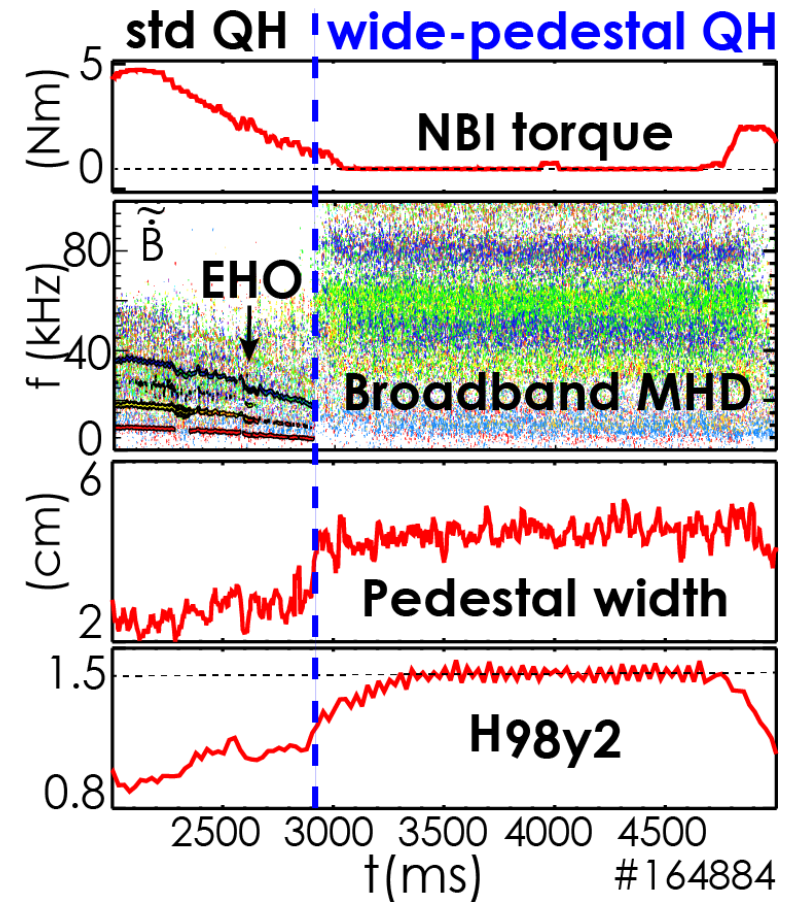


# Discovery of a New Wide-Pedestal Quiescent H-mode Regime at Low Torque in DIII-D

- QH-mode bifurcates to a wide-pedestal state at low torque (thus low ExB shear)
  - Stationary ELM-stable operation at zero net torque with excellent confinement
- Increased edge turbulent transport reduces pedestal pressure gradient allowing a higher pedestal

✓ Exciting potential ELM stable operation regime for future fusion reactor



# Advances in the Understanding of Edge Harmonic Oscillation in QH-mode

*Standard QH-mode relies on an Edge Harmonic Oscillation to regulate the edge*

- Linear eigenmode structure from M3D-C1 modeling matches closely the EHO characteristics from various diagnostics
- Modeling confirms the importance of ExB rotation shear ( $\omega_{E \times B}$ ) in destabilizing low-n EHO
  - Experimentally, lower  $\omega_{E \times B}$  for exciting EHO correlates with lower pedestal  $v_e^*$

✓ Improved confidence of QH access in ITER

