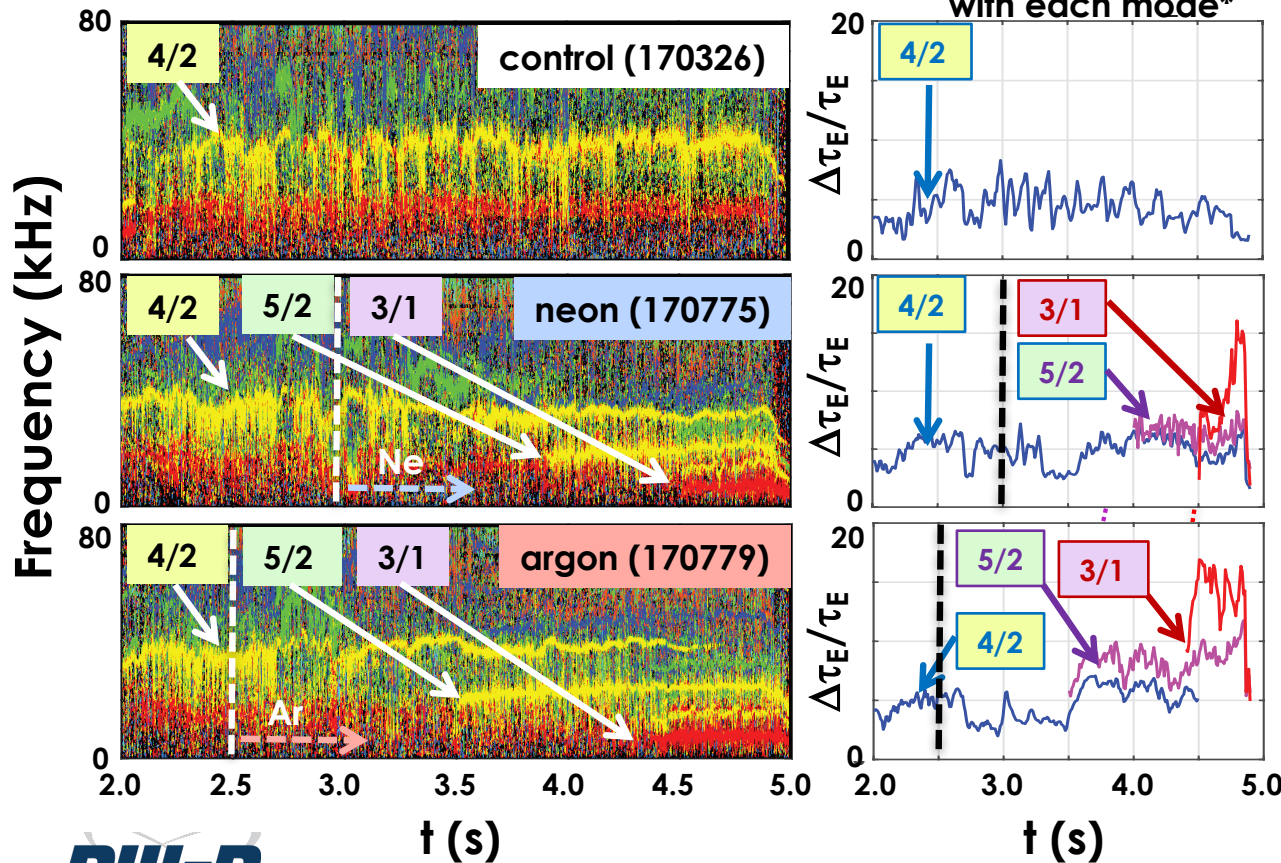


A Reduction of $\approx 20\%$ in τ_E During Neon- and Argon Injection was Driven by Evolving MHD Activity in These High β_N Plasmas

$P_{IN} \approx 14.7$ MW, $\beta_N \approx 3.5$ and $H_{98} \approx 1.5$ (pre-puff)

Estimated loss of τ_E (%) with each mode*

← Consistent with measurement



SUMMARY

- **Result at lower P_{IN} and β_N :**
 ≈ 2 - $3X$ reduction in divertor heat flux with minimal decrease τ_E
- **At higher P_{IN} and β_N :**
 The susceptibility of high β_N DND plasmas to tearing modes during impurity injection complicates successful application of the radiating divertor/mantle to DIII-D.
- **Outlook:**
 Tearing modes must be avoided when combining a radiating mantle or a radiating divertor approach with high power, high β_N scenarios.

"Belt model": $\Delta W/W_0 = -4 r_s^3 w/a^4$

* Z. CHANG, J. D. CALLEN, Nucl. Fusion **30** (1990) 219.