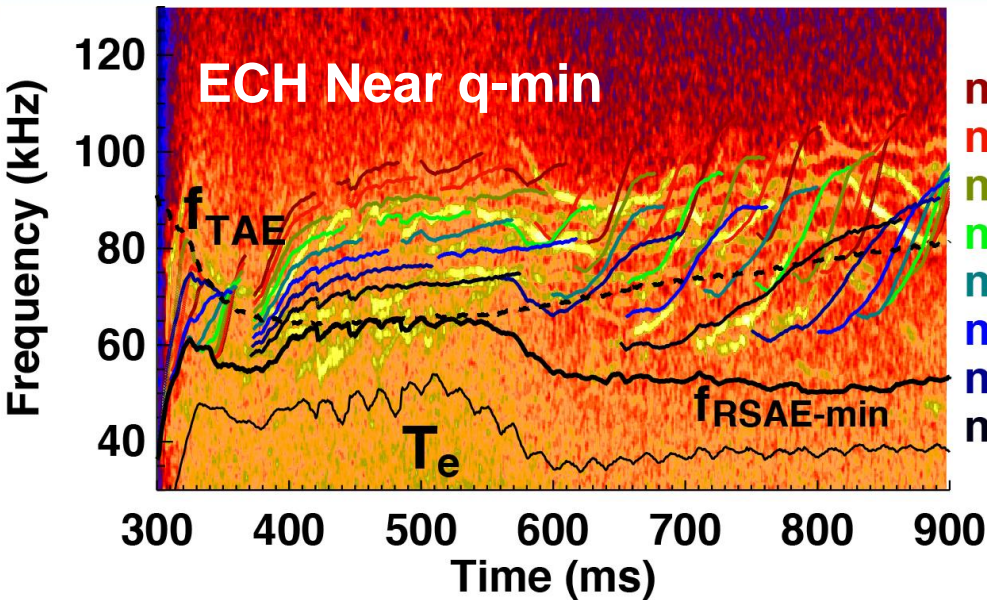


Large Impact of ECH on Alfvén Eigenmode (AE) Activity in DIII-D Plasmas Explained by Finite Pressure Effects

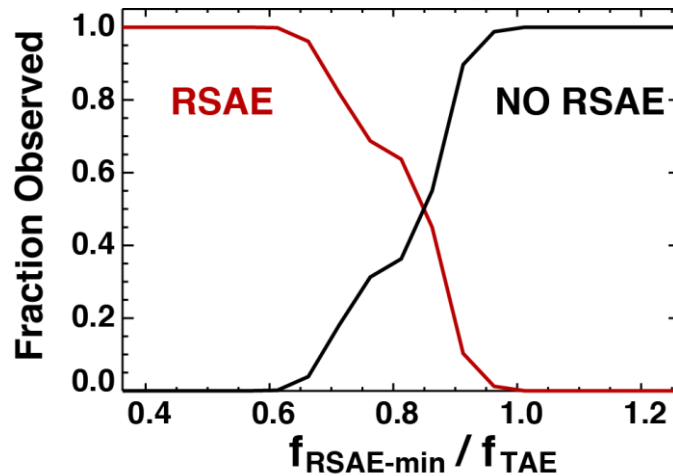


- ECH drastically alters AE activity
 - RSAEs particularly sensitive
- RSAEs exist between a minimum frequency and the TAE frequency
 - Temperature gradient and elongation modify minimum frequency

$$f_{\text{RSAE-min}}^2 = (f_{\text{GAM}}^2 + f_{\nabla}^2)$$

$$f_{\text{GAM}}^2 \propto T_e \quad f_{\nabla}^2 \propto \nabla T_e$$

- Including these effects correctly predicts existence and evolution of RSAEs



Resolves long-standing mystery of how ECH suppresses typical frequency sweeping RSAEs