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
    \[ f_{\text{RSAE-min}}^2 = (f_{\text{GAM}}^2 + f_{\nabla T}^2) \]
    \[ f_{\text{GAM}}^2 \propto T_e \quad f_{\nabla T}^2 \propto \nabla T_e \]
  - Including these effects correctly predicts existence and evolution of RSAEs

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

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