CAE-KAW coupling potentially important channel for energy transport from plasma core but *coupling not yet experimentally observed – perform expt on DIII-D to identify and quantify*

- CAE-KAW coupling (mode conversion) predicted by HYM simulations: $k_r \rho_{fast} \gtrsim 1$ (not including bulk kinetic effects)
  - CAEs destabilized by beams => radiate energy to edge => mode convert to KAW & dissipate energy
  - *Energy channel not in TRANSP*: beam energy *diverted* from core heating to edge heating
- DIII-D represents experimental opportunity to detect coupling
  - validate HYM simulation
- CAEs documented in DIII-D in low and high field plasmas
- Multiple diagnostics sensitive to KAW ($k_r \rho_s \gtrsim 1$, including bulk kinetic effects, $f = f_{CAE} \lesssim f_{ci} = 7$ MHz at 1T):
  - Doppler Backscattering:$k\rho_s \gtrsim 0.1$ f < 10 MHz
  - Phase contrast imaging: $k_R \rho_s \gtrsim 1$, f < 10 MHz
- Ingredients for identification of CAE-KAW coupling:
  1) Distinguish detection of scattering from interferometer effect
  2) Detection of scattering should be radially localized where $\omega = k_{||} v_A$=> establish via profile modification or steering of diagnostic (DBS)