Extension of kinetic-MHD model to include toroidal rotation shear effect

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Energy exchange between MHD modes and particles’ motion, $\delta W_k$, is generalized by introducing sheared equilibrium rotation.

$$\delta W_k = \delta W_{k0} \quad \text{: conventional}$$

$$+ \delta W_{k1} \quad \text{: Coriolis}$$

$$+ \delta W_{k2} \quad \text{: centrifugal}$$

$$+ \delta W_{k3} \quad \text{: rotational modification to equilibrium distribution function}$$

$= \text{new terms}$

RWM growth rate vs. rotation shear at $q=2$ for conventional and extended kinetic-MHD model. Extended model shows enhancement of stabilization effect of rotation shear.