Numerical simulation of ETG fluid model in uniformly sheared
$E \times B$ **velocity** JUHYUNG KIM, Institute for Fusion Studies, University of Texas
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tumani Astrophysical Observatory, Georgia, WENDELL HORTON, Institute for
Fusion Studies, University of Texas at Austin — We construct an ETG fluid model
(Horton et al. Nucl. Fusion 45, 2005) with uniformly sheared $E \times B$ velocity. The
fluid model is implemented based on the pseudospectral method. The linear dynam-
ics calculation is performed in the moving frame, where the periodicity is assumed in
the Lagrangian coordinate, and the nonlinear term is implemented in the traditional
Fourier transformation (Lithwick, arXiv:astro-ph/0702046, 2007). This method en-
ables us to investigate the nonlinear dynamics in sheared flow at a typical growth
rate $\gamma > \omega_E$, for which we observed long-lived vortex structures when no instability
is included (Kim et al. Phys. Plasma 13, 2304, 2006). We will report the spectrum
for the electrostatic potential and the temperature.

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