Effect of Gyroviscosity on Tearing Modes in Tokamak Plasmas[1]

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— We present an extension of the Glasser-Greene-
Johnson equations, incorporating the Braginskii gyroviscosity. It is found that the
dominant terms from the gyroviscous stress are all due to poloidal variation of
the equilibrium profile, implying that these physical effects are not captured in a
large-aspect-ratio (cylindrical) model. Because these purely toroidal contributions
dominate, we conclude that thewell-known"gyroviscous cancellation" is a higher-
order effect in toroidal confinement systems. We also present preliminary numerical
results showing the effect of gyroviscosity on tearing mode stability.

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