Gyrokinetic analysis of global high-beta MHD eqiulibria[1] RAHUL
GAUR, WILLIAM DORLAND, I. G. ABEL, DYLAN LANGONE, University of
Maryland, College Park, PIERRE GOURDAIN, University of Rochester — To build
high power density, compact, fusion devices one possibility is to use very high beta
equilibria. These have previously been studied in the context of MHD stability
(Hsu, Artun and Cowley PoP 3,266 (1996)). We wish to look at their transport and
confinement properties. To this end, we present a linear gyrokinetic stability analysis
of high-beta, up-down-symmetric, global MHD equilibria. These equilibria were
obtained using the asymptotic methods of Hsu et al. We investigate the effects of
the five good properties of these equilibria mentioned by Hsu et al: reduced trapped
particle fraction, strongly stabilising average curvature, short connection lengths in
the bad curvature region, intense local magnetic shear and locally-favourable grad-B
drifts.

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Rahul Gaur
University of Maryland, College Park

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