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Resistive ballooning modes in general toroidal geometry¹ TARIQ RAFIQ, CHRIS C. HEGNA, JAMES D. CALLEN, University of Wisconsin — Resistive ballooning modes (RBM) could be unstable and responsible for edge plasma fluctuations and anomalous transport in tokamaks and stellarators. A linear stability theory of RBM is investigated using a two fluid model based on the reduced Braginskii equations for arbitrary three dimensional geometry. RBM eigenvalues and eigenfunctions are calculated for a variety of equilibria including axisymmetric shifted circular geometry ($s - \alpha$ model) and configurations of interest to the Helically Symmetric stellarator (HSX). Attempts to generalize previous analytic calculations of RBM stability using a two scale analysis on $s - \alpha$ equilibria to more general 3-D equilibria will be addressed.

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