# The Effects of Free Streaming on Warm Dark Matter Haloes: A Test of the Gunn-Tremaine Limit

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The free streaming of warm dark matter particles dampens the fluctuation spectrum, flattening the mass function of haloes and imprinting a fine grained phase density limit for dark matter structures. We explore these effects using high resolution simulations of structure formation in a warm dark matter universe. The Gunn-Tremaine limit is expected to imprint a constant density core at the halo center and we verify this with our simulations. The structure formation in the warm dark matter case occurs top-down on galactic scales where the most massive haloes are collapsing first. The halo mass-concentration mass-redshift formation relations are thus reversed with respect to cold dark matter.