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Fluctuations associated with anisotropy instabilities and dissipation in the solar wind STUART BALE, University of California, Berkeley — The proton temperature anisotropy in the solar wind is known to be constrained by the theoretical thresholds for several anisotropy-driven instabilities. Here we use approximately 1 million independent measurements of high frequency magnetic fluctuations in the solar wind to show that these fluctuations are enhanced along the temperature anisotropy thresholds of the mirror, proton firehose, and ion cyclotron instabilities. In addition, the measured magnetic compressibility is enhanced at high plasma beta ($\beta_{\parallel} \gtrsim 1$) along the mirror instability threshold, consistent with expectations of the mirror mode. The power in this frequency (the 'dissipation') range is often considered to be driven by the solar wind turbulent cascade, an interpretation which should be reconsidered in light of the present results.

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