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The magnetic reconnection model for blazar emission

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The recent observations of powerful, minute-timescale TeV flares from several blazars pose serious challenges to theoretical models for the blazar emission. In this talk, I will discuss the magnetic reconnection model for the blazar flaring. I argue that radiation emitted from the reconnection layers can account for the observed "envelope"of ˜day-long blazar activity as well as the fastest observed flares. Moreover, I will show that the reconnection model predicts that the emission regions are characterized by rough equipartition between radiating particles and magnetic fields; in agreement with observations. Finally, I will show examples of lightcurves and spectra calculated directly with first-principle Particle in cell simulations of the magnetic reconnection layer.

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