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Understanding the Spectrum of Gamma-Ray Burst 190114C

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The recent very-high-energy (VHE) gamma-ray observations of gamma-ray bursts (GRBs) in their afterglow phase motivate a review of the established fireball model in which a relativistic blast wave accelerates electrons in the forward shock, which then radiate via the synchrotron process and inverse Compton scattering on these synchrotron photons (synchrotron self-Compton). We use the rich observations of GRB 190114C ranging from X-ray (keV) to VHE gamma-rays (TeV) to investigate the properties of the radiating electron distribution assuming a single emitting zone. We present preliminary modeling considering the landscape of solutions finding consistency with the multi-wavelength observations, and consider the implications of these different solution groups.

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