PARTICLE ACCELERATION AND SYNCHROTRON EMISSION FROM RELATIVISTIC BLASTWAVES

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Relativistic blastwaves accelerate particles which are scattered by a highly disordered magnetic field. These particles are then advected downstream of the shock where they emit synchrotron radiation in the ambient magnetic field. We have developed a numerical code to study the hydrodynamics of a strong relativistic blastwave with a general equation of state. We study the acceleration of particles by the forward and reverse shocks and solve for their emission. Implications for the fireball model of gamma ray bursts are discussed.