

Abstract for an Invited Paper  
for the APR06 Meeting of  
The American Physical Society

**GRBs as probes of relativistic jet physics and cosmology<sup>1</sup>**

DIETER HARTMANN, Clemson University

Key observational properties of long-duration and short-duration GRBs will be reviewed briefly and discussed in the context of current theoretical models. Emphasis will be on a critical assessment of what we know with confidence and the extent of speculation. The discussion will include issues regarding the central engine, progenitors, afterglows, and host galaxy properties. We address the extent to which GRBs may serve as a probe of ultra-relativistic physics, and their use as a tool of cosmology. The latter issue is divided into their use for determining cosmological parameters and their use as background “light bulbs” to trace cosmic chemical evolution.

<sup>1</sup>I acknowledge support from the Swift team and NASA INTEGRAL GI grant NNG05GA12G