Abstract Submitted
for the APR11 Meeting of
The American Physical Society

Constraints from GRB Observation for Cosmological Models RA-
ZIEH BEHKAM, JAMES RHOADS, Arizona State University — We use Liang-
Zhang relation for Gamma Ray Bursts to constrain Λ Cold Dark Matter standard
cosmology and a particular class of brane cosmology (brane-induced gravity model).
With the most probable model being $\Omega_m = 0.23$ and $\Omega_\Lambda = 0.77$ for flat ΛCDM
cosmology and $\Omega_m = 0.18$ and $\Omega_{r_c} = 0.17$ for flat brane-induced gravity cosmol-
ogy, our result is comparable with the result from SNIa observation. With average
uncertainty of distance modulus being 0.2771, the two discussed cosmologies are
indistinguishable using our current sample of GRB with redshift ranging between
0.1685 and 3.2. We argue that by expanding the sample and adding more low and
high redshift GRBs and also with improvement in using GRBs for cosmography, we
might be able to distinguish between different cosmological models and tighten the
most probable area.

Razieh Behkam
Arizona State University

Date submitted: 14 Jan 2011   Electronic form version 1.4