Abstract Submitted
for the APR15 Meeting of
The American Physical Society

iPTF14yb: The First GRB Discovered Outside the Gamma-Ray Bandpass and the Rate of Orphan Afterglows STEPHEN CENKO, NASA GSFC — We report here the discovery by the Intermediate Palomar Transient Factory (iPTF) of iPTF14yb, the first unambiguous detection of an afterglow-like transient identified outside the γ-ray bandpass. Subsequent to our discovery announcement, the "parent" γ-ray burst GRB 140226A was identified by the Inter-Planetary Network of high-energy detectors. We demonstrate an association between iPTF14yb and GRB 140226A based both on probabilistic arguments and by comparing iPTF14yb with the known population of long GRB afterglows and host galaxies. We furthermore estimate the rate of iPTF14yb-like transients based on iPTF observations, and demonstrate it is consistent with the rate of on-axis long GRBs. Finally, we briefly discuss the implications of the non-detection to date of bona fide "orphan" afterglows (i.e., those lacking entirely in high-energy emission) on GRB beaming and the degree of baryon loading in these relativistic jets.

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Date submitted: 09 Jan 2015 Electronic form version 1.4