

Swift Observations of GRB 140809A

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1. Introduction

At 03:11:10.20 UT on 09 August 2014 (Roberts and Pelassa GCN Circ. [16681](#)), the Fermi Gamma-Ray Burst Monitor triggered and located GRB 140809A (trigger 429246673/140809133). A possible counterpart was detected by MASTER II (Shumkov *et al.* 2014, GCN Circ. [16674](#)). The optical candidate is near the galaxy PGC 36760 (SDSS J114654.97+660942.3), which has a redshift of 0.0413. **Table 1** is a summary of GCN Circulars about this GRB from observatories other than Swift.

Given the lack of detection with XRT and the lack of significant, short-term optical variability, it is uncertain whether the MASTER source is associated with the GRB.

2. BAT Observations and Analysis

BAT did not observe this burst.

3. XRT Observations and Analysis

We have analyzed 2.0 ks of XRT data (Kuin *et al.* 2014, GCN Circ. [16676](#)) for GRB 140809A, from 77.2 ks to 79.2 ks after the GBM trigger. No X-ray source was found at the position of the MASTER II source with an upper limit of 4.0×10^{-3} ct s⁻¹.

4. UVOT Observations and Analysis

The Swift/UVOT began settled observations of the field of GRB 140809A 77 ks after the GBM trigger (Kuin *et al.* 2014, GCN Circ. [16676](#)) with the *v*, *uvm2*, and *uvw2* filters. A new source consistent with the position given by Masi (GCN Circ. [16675](#)) is detected in *v*, while the emission in the two UV filters appears to be dominated by emission from the galaxy. **Table 2** gives preliminary magnitudes using the UVOT photometric system (Breeveld *et al.* 2011, AIP Conf. Proc., 1358, 373). No correction has been made for the expected extinction in the Milky Way corresponding to a reddening of E_{B-V} of 0.01 mag. in the direction of the GRB (Schlegel *et al.* 1998).

Band	Authors	GCN Circ.	Subject	Observatory	Notes
Optical	Shumkov <i>et al.</i>	16674	MASTER follow-up inspection	MASTER	detection
Optical	Masi	16675	Virtual Telescope optical observations	VT	detection
Gamma-ray	Roberts and Pelassa	16681	Fermi GBM detection	Fermi GBM	$E_{\text{peak}}=507 \pm 192$ keV Fluence= $2.10 \pm 0.04 \times 10^{-6}$ erg cm ⁻²

Table 1. Summary of GCN Circulars from other observatories sorted by band and then circular number.

Filter	T _{start} (s)	T _{stop} (s)	Exp(s)	Mag
v	78122	79027	885	17.27 ± 0.05
m2	79032	79208	174	18.78 ± 0.26
w2	77214	78114	886	18.74 ± 0.11

Table 2. UVOT observations reported by Kuin *et al.* 2014 (GCN Circ. [16676](#)). The start and stop times of the exposures are given in seconds since the GBM trigger. No correction has been made for extinction in the Milky Way.

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