



UvA-DARE (Digital Academic Repository)

GRB 221009A: Hubble Space Telescope observations

Levan, A.J.; Barclay, T.; Bhirombhakdi, K.; Burns, E.; Cenko, S.B.; Chrimes, A.A.; D'Avanzo, P.; D'Elia, V.; Della Valle, M.; de Ugarte Postigo, A.; Fong, H.; Fruchter, A.S.; Gompertz, B.P.; Hartmann, D.; Hedges, C.L.; Heintz, K.E.; Izzo, L.; Jakobsson, P.; Jonker, P.G.; Kann, D.A.; Kennea, J.A.; Floc'h, E. Le; Malesani, D.B.; Melandri, A.; Metzger, B.D.; Mullally, S.E.; Pian, E.; Piranomonte, S.; Pugliese, V.; Racusin, J.; Rastinejad, J.C.; Ravasio, M.E.; Rossi, A.; Salvaterra, R.; Sbarufatti, B.; Schneider, B.; Starling, R.L.C.; Tanvir, N.R.; Thoene, C.C.; Vergani, S.D.; Wijers, R.A.M.J.; Xu, D.

Publication date

2022

Document Version

Final published version

Published in

GRB Coordinates Network, Circular Service

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Levan, A. J., Barclay, T., Bhirombhakdi, K., Burns, E., Cenko, S. B., Chrimes, A. A., D'Avanzo, P., D'Elia, V., Della Valle, M., de Ugarte Postigo, A., Fong, H., Fruchter, A. S., Gompertz, B. P., Hartmann, D., Hedges, C. L., Heintz, K. E., Izzo, L., Jakobsson, P., Jonker, P. G., ... Xu, D. (2022). GRB 221009A: Hubble Space Telescope observations. *GRB Coordinates Network, Circular Service, 32921*.
<https://gcn.gsfc.nasa.gov/gcn/gcn3/32921.gcn3>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

TITLE: GCN CIRCULAR
NUMBER: 32921
SUBJECT: GRB 221009A: Hubble Space Telescope observations
DATE: 22/11/08 21:17:06 GMT
FROM: Andrew Levan at U.of Leicester <a.levan@astro.ru.nl>

A.J. Levan (Radboud Univ.), T. Barclay (NASA/GSFC), K. Bhirumbhakdi (STScI), E. Burns (LSU), S. B. Cenko (NASA/GSFC), A. A. Chrimes (Radboud Univ.), P. D'Avanzo (INAF/OABr), V. D'Elia (INAF/OAR and ASI/SSDC), M. Della Valle (INAF/OAC), A. de Ugarte Postigo (Obs. Cote d'Azur), W. Fong (Northwestern), A. S. Fruchter (STScI), B. P. Gompertz (Birmingham), D. Hartmann (Clemson University), C. L. Hedges (NASA/GSFC), K. E. Heintz (DAWN/NBI), L. Izzo (DARK/NBI), P. Jakobsson (U. Iceland), P.G. Jonker (Radboud Univ. & SRON), D. A. Kann (Goethe Univ.), J. A. Kennea (PSU), E. Le Floc'h (CEA Paris-Saclay), D. B. Malesani (Radboud Univ. and DAWN/NBI), A. Melandri (INAF/OAR), B. D. Metzger (Columbia and Flatiron/CCA), S. E. Mullally (STScI), E. Pian (INAF, Bologna), S. Piranomonte (INAF/OAR), G. Pugliese (Amsterdam Univ.), J. L. Racusin (NASA/GSFC), J. C. Rastinejad (Northwestern), M. E. Ravasio (Radboud Univ and INAF/OABr), A. Rossi (INAF/OAS), R. Salvaterra (INAF/IASF Milan), B. Sbarufatti (INAF/OABr), B. Schneider (CEA Paris-Saclay), R. L. C. Starling (U. Leicester), N. R. Tanvir (U. Leicester), C. C. Thoene (ASU-CAS), S. D. Vergani (CNRS - Paris Obs.), R. A. M. J. Wijers (Amsterdam), D. Xu (NAOC) report:

We observed the afterglow of GRB 221009A (Dichiara et al., GCN 32632; Kennea & Williams, GCN 32635; Bissaldi et al., GCN 32637; Veres et al., GCN 32636) with the Hubble Space Telescope on 8 November 2022, approximately 30 days after the Fermi/GBM trigger. Observations were obtained in five filters spanning the optical and NIR region (F625W, F775W, F098M, F125W and F160W).

The optical/IR counterpart is well detected in all images, with provisional AB magnitudes of F625W = 23.61 +/- 0.04, F775W = 22.43 +/- 0.04, F098M = 21.21 +/- 0.01, F125W = 20.63 +/- 0.01, F160W = 20.37 +/- 0.01 mag, based on small apertures around the source location (errors statistical only). After correction for foreground extinction the spectral shape is indicative of a peak around 1 micron, which could be due to the contribution from the associated supernova (de Ugarte Postigo et al. GCN 32800, Belkin et al. GCN 32818, Maiorano et al. GCN 32850).

Inspection of the images reveals faint emission to the NE which is only visible in the NIR bands, and which extends for approximately 1" (2.6 kpc at $z = 0.151$; de Ugarte Postigo et al., GCN 32648; Castro-Tirado et al. GCN 32686). We suggest this extension is the host galaxy of GRB 221009A and is only visible in the NIR due to foreground extinction.

Analysis is ongoing, and further observations are planned in late November and early December.

We thank the staff of STScI, in particular Claus Leitherer, William Januszewski and Joel David Green for their work in rapidly implementing the related DDT proposal (GO 17264, PI Levan).