GRB 111123A: Keck-I host detection and VLT/X-shooter redshift


Publication date
2013

Document Version
Final published version

Published in
GRB Coordinates Network, Circular Service

Citation for published version (APA):
We observed the field of GRB 111123A (Stamatikos et al., GCN 12587) using the Keck-I telescope equipped with the LRIS instrument. Observations were carried out on 2013 February 10 (~444 days after the burst), simultaneously in the g and I bands, for a total exposure time of 750 and 720 s, respectively.

An extended source with g=25.83 (AB) and I = 23.55 (Vega) is detected at the position of the optical and NIR afterglow (Xu et al., GCN 12589; Fugazza et al., GCN 12593), where the positional error radius of the optical afterglow has been reduced from ~1.0" to ~0.3" through a refined analysis. We thus consider the source to be the host galaxy of GRB 111123A.

A spectrum of this source was taken on 2013 March 07 with the ESO VLT equipped with the X-shooter spectrograph, featuring NIR/VIS/UVB three arms and covering the wavelength range 3000-25000 AA. The exposure time was 4x600 s. In the NIR arm, we detect four emission lines, interpreted as [O III] (5007), [NeIII] (3869), [O II] (3727), and Hbeta (a marginal detection), all at a common redshift z = 3.1516. In the UVB arm, the host continuum is detected down to ~5100 AA, thus corresponds to the onset of the Lyman alpha forest at the proposed redshift.

We acknowledge excellent support from the observing staff at Mauna Kea and Paranal, in particular Emanuela Pompei, Claudio Melo, and Andres Pino.