



11717 - Unraveling the Mysterious Origin of GRB 070125

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) GRB070125	WFC3/IR WFC3/UVIS	2	02-Jul-2008 22:25:11.0	yes

2 Total Orbits Used

ABSTRACT

We propose a modest (2 WFC3 orbits) HST program to ascertain the origin of the mysterious gamma-ray burst GRB 070125. With a duration of 60 s and a high local (i.e. parsec scale) circum-burst density, GRB 070125 resembles a canonical (i.e. massive-star progenitor) long-duration event. However, we have strong evidence that GRB 070125 exploded in the halo of its host galaxy, far away from the bulk of massive star formation. The UV detection of a compact, star-forming cluster would confirm our original hypothesis that GRB 070125 exploded in a tidal tail formed by galaxy interactions (analogous to the Tadpole and Antenna galaxies) at $z = 1.54$. Alternatively, the absence of ongoing star formation and the presence of an old stellar population would require a novel explosion process unassociated with massive stars. While the former would open a new path to study star formation and galaxy interactions at high redshift, the latter would require a re-thinking of one of the fundamental tenets of GRB astronomy: the 1:1 mapping between duration and progenitor system.

OBSERVING DESCRIPTION

One orbit of WFC3/UVIS (F336W) + one orbit of WFC3/IR (F110W) imaging.

Proposal 11717 - Visit 01 - Unraveling the Mysterious Origin of GRB 070125

Thu Jul 03 02:25:15 GMT 2008

Visit	Proposal 11717, Visit 01 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)				
	(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(2)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	GRB070125	RA: 07 51 17.7670 (117.8240292d) Dec: +31 09 4.11 (31.15114d) Equinox: J2000		V=27.0+/-2.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	UV - F336 W Orbit	(1) GRB070125	WFC3/UVIS, ACCUM, UVIS1	F336W	CR-SPLIT=NO			Pattern 1-1 (1)	630.0 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]
2	NIR - F110 W Orbit	(1) GRB070125	WFC3/IR, MULTIACCUM, IR	F110W	NSAMP=15; SAMP-SEQ=SPAR S50			Pattern 2-2 (2)	[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[2]



