



13061 - High-Precision Proper Motions in the M87 Jet

Cycle: 20, 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) M87-NUCLEUS	STIS/NUV-MAMA	1	11-Jul-2012 02:10:55.0	yes

1 Total Orbits Used

ABSTRACT

As the nearest galaxy with an optical jet, M87 affords an unparalleled opportunity to study extragalactic jet phenomena at the highest resolution. We have previously obtained HST images of the jet with unprecedented resolution which show detailed shock structures as well as numerous unresolved condensations over the first few arcseconds of the jet. Our previous HST monitoring observations have found superluminal motion at speeds up to 6c in many of these features, and showed the formation of new emission regions and rapid variability.

The recently repaired STIS/NUV instrument now presents a unique opportunity to measure proper motions in the M87 jet with a single highly stable, high resolution instrument across a 13 yr timebase. We will use these new data, together with STIS/NUV data from 1999-2003 to map the velocity field of the jet to much higher accuracy than previously possible. This will allow us to measure the bulk deceleration of the jet, transverse motions, accelerations / decelerations of individual features, and numerous fainter jet features. We will use this to test models for the structure and kinematics

Proposal 13061 (STScI Edit Number: 0, Created: Wednesday, July 11, 2012 1:11:02 AM EST) - Overview
of relativistic jet flows, synchrotron emission regions, and AGN in general.

OBSERVING DESCRIPTION

We will obtain STIS NUV/F25QTZ images of the jet using a setup which closely duplicates our previous monitor observations.

Sub-exposures will be dithered to improve PSF sampling by the 0.024" pixels and minimize detector artifacts. There should be no bright object issues for either the M87 nucleus or jet.

Proposal 13061 - Visit 01 - High-Precision Proper Motions in the M87 Jet

Wed Jul 11 06:11:02 GMT 2012

Visit	Proposal 13061, Visit 01				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: STIS/NUV-MAMA				
	Special Requirements: SCHED 100%; ORIENT 103.D TO 110. D				
<i>Comments: Prefer scheduling during May - August 2013 visibility window.</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	M87-NUCLEUS	RA: 12 30 49.4300 (187.7059583d) Dec: +12 23 28.90 (12.39136d) Equinox: J2000		V=16.7	Reference Frame: ICRS

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(415830)	(1) M87-NUCLEUS	STIS/NUV-MAMA, ACCUM, F25QTZ	MIRROR		POS TARG -7,7		590 Secs [==>]	[1]
<i>Comments: ETC calculation based on May 2012 STIS NUV observation.</i>										
	2	(415830)	(1) M87-NUCLEUS	STIS/NUV-MAMA, ACCUM, F25QTZ	MIRROR		POS TARG -6.496,6 .748		590 Secs [==>]	[1]
	3	(415830)	(1) M87-NUCLEUS	STIS/NUV-MAMA, ACCUM, F25QTZ	MIRROR		POS TARG -6.244,6 .244		590 Secs [==>]	[1]
	4	(415830)	(1) M87-NUCLEUS	STIS/NUV-MAMA, ACCUM, F25QTZ	MIRROR		POS TARG -6.748,6 .496		590 Secs [==>]	[1]

