



## 12366 - A Runaway Black Hole in COSMOS

Cycle: 18, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Francesca Civano (PI)</b>	<b>Smithsonian Institution Astrophysical Observatory</b>	<b>francesca.civano@gmail.com</b>
Dr. Martin Elvis (CoI)	Smithsonian Institution Astrophysical Observatory	elvis@cfa.harvard.edu
Dr. Antonella Fruscione (CoI)	Smithsonian Institution Astrophysical Observatory	afruscione@cfa.harvard.edu
Dr. Giorgio Lanzuisi (CoI) (ESA Member)	Universita di Roma La Sapienza	giolanzu@gmail.com
Dr. Marcella Brusa (CoI) (ESA Member)	Max-Planck-Institut fur extraterrestrische Physik	marcella@mpe.mpg.de
Dr. Stefanie Komassa (CoI) (ESA Member)	Max-Planck-Institut fur extraterrestrische Physik	Stefanie.Komossa@gmx.de
Dr. Mara Salvato (CoI)	California Institute of Technology	ms@astro.caltech.edu
Dr. Cristian Vignali (CoI) (ESA Member)	Universita di Bologna	cristian.vignali@unibo.it
Dr. Thomas L. Aldcroft (CoI)	Smithsonian Institution Astrophysical Observatory	aldcroft@cfa.harvard.edu
Dr. Andrea Comastri (CoI) (ESA Member)	INAF, Osservatorio Astronomico di Bologna	andrea.comastri@oabo.inaf.it
Ms. Angela Bongiorno (CoI) (ESA Member)	Max-Planck-Institut fur extraterrestrische Physik	angela@mpe.mpg.de
Dr. Enrico Piconcelli (CoI) (ESA Member)	INAF, Osservatorio Astronomico di Roma	piconcelli@oa-roma.inaf.it
Dr. Vincenzo Mainieri (CoI) (ESA Member)	European Southern Observatory - Germany	vmainier@eso.org
Dr. Knud Jahnke (CoI)	Max-Planck-Institut fur Astronomie, Heidelberg	jahnke@mpia-hd.mpg.de

### 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>
03	(1) CID-42-SE-SOURCE CCDFLAT WAVE	STIS/CCD	1	26-Jan-2011 21:10:44.0	yes

1 Total Orbits Used

### **ABSTRACT**

We ask for 80ks of HRC imaging observation to unambiguously resolve the X-ray emission, and unveil the nature, of two optical sources hosted by a galaxy in the COSMOS field (CID-42) and separated by only  $0.495''$ . One of the two sources is the best candidate to date for being a recoiling super-massive black hole (SMBH) with both spectroscopic and imaging signatures, in a recently merged system. CID-42 is a possible ‘‘Rosetta stone’’ for the study of SMBH mergers that are believed to occur during galaxy-galaxy mergers. Is CID-42 (1) a GW recoiling SMBH from a recent merger or (2) a slingshot recoiling SMBH in a triple SMBH system? HRC imaging will decide clearly.

### **OBSERVING DESCRIPTION**

STIS long-slit spectroscopy (G750L) observation.

Proposal 12366 - Visit 03 - A Runaway Black Hole in COSMOS

Thu Jan 27 02:10:49 GMT 2011

Visit	<b>Proposal 12366, Visit 03</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/CCD Special Requirements: SCHED 100%; ORIENT 6.7D TO 6.7 D; ORIENT 186.7D TO 186.7 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CID-42-SE-SOURCE	RA: 10 00 43.1530 (150.1798042d) Dec: +02 06 37.03 (2.11029d) Equinox: J2000		V=19.4	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CID-42-SE-SOU RCE	STIS/CCD, ACQ, 50CCD	MIRROR				30 Secs [==>]	[1]
	2		(1) CID-42-SE-SOU RCE	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A				950 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(1) CID-42-SE-SOU RCE	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A		POS TARG 0,0.3556		950 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>]	[1]
	5		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]

