

Proposal for *Chandra* Observations

Cycle 09

Cover Page

Principal Investigator Mr Kenneth Cavagnolo		
Department/Mailstop Physics and Astronomy		
Institute MICHIGAN STATE UNIVERSITY		
Address / Street BPS Building		City / Town East Lansing
State / Province MI	Zip / Postal Code 48824-2320	Country USA
Telephone 5173559200x2443	Fax	
E-Mail Address: cavagnolo@pa.msu.edu		

Proposal Title The Hyperluminous Infrared Galaxy IRAS 09104+4109: An Extreme Brightest Cluster Galaxy			
Subject Category CLUSTERS OF GALAXIES			
Proposal Type GO	Linked Proposal N	Distr. Medium WWW ONLY	Proprietary Rights S
Total Requested Time 50.00	Number of Targets 1		Proposed Budget

Joint Proposal?		XMM Time	RXTE Time
HST Orbits	HST Instruments:		
Spitzer Time	Spitzer AOTs:		
NOAO Nights?	NOAO Telescope/Instruments:		
NRAO/VLA Hours	NRAO/VLA Array	NRAO/VLA Wavelength	
NRAO/VLBA Hours	NRAO/VLBA Wavelength		

Abstract We propose a study of the cluster environment of IRAS 09104+4109 via temperature, entropy, and pressure. IRAS 09104+4109 is a rare combination hyperluminous infrared brightest cluster galaxy (BCG) in a rich cluster, MACS J0913.7+4056. The environment surrounding the BCG is best described as extreme with cannibalized companion galaxies, stripped gas, and the most powerful radio source of any IRAS object which is likely blowing bubbles. Understanding the relationship of the AGN feedback mechanism active in the BCG with the extreme environment surrounding IRAS 09104+4109 will allow us to fit this unique and extreme object into the feedback framework and may tell us about a very short-lived but highly active stage of cluster formation and of the formation of the central galaxy.		
Proposal Number	Date: 2007-03-15	Admin. use only

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PI Mr Kenneth Cavagnolo		
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Co-Investigator(s)		
First Name Last Name	E-Mail Institute	Country
Megan Donahue	donahue@pa.msu.edu MICHIGAN STATE UNIVERSITY	USA
Mark Voit	voit@pa.msu.edu MICHIGAN STATE UNIVERSITY	USA
Ming Sun	sunm@pa.msu.edu MICHIGAN STATE UNIVERSITY	USA
Are there additional Co-Is listed in the science justification? N		
Is the first Co-I doing observing, rather than the PI? N Telephone:		

Name of Administrator	Craig O'Neill
Administrative Authority	Senior Contract And Grant Administrator
Administrative Institute	MICHIGAN STATE UNIVERSITY
Admin Signature:	Date:
PI Signature:	Date:

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Cycle 09

Target Summary

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Tar No	Target Name	(J2000)	Offsets Y Detector Z Detector SIM Trans	Optical Monitor V-Mag	Observ. Time (ksec)	Detector	(c/s)	Time- Constr? Ext.Src?	Grid #Points MaxDist.
	Solar System Object					Grating	Count Rate		
	Grid Name					HRC	1st Order		
	Target Description (keywords)					Timing	Total Fld.		
1	IRAS 09104+4109 NONE EVOLUTION; GALAXY CENTERS; GALAXY FORMATION AND EVOLUTION; IR-LUMINOUS GALAXIES; RADIO GALAXIES; INTRACLUSTER MEDIUM	09 13 45.5 +40 56 27.5		N	50.0000	ACIS-S NONE N	1.150000 1.150000	P Y	N

Cycle 09

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4

Cycle 09

PI Mr Kenneth Cavagnolo

The Hyperluminous Infrared Galaxy IRAS 09104+4109: An Extreme Brightest Cluster Galaxy

5

Proposal for *Chandra* Observations

Cycle 09

Target Constraints

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Tar No	Window Constraint			Roll Constraints			Phase Dependent Observations				
	Flag	Start Time	Stop Time	Flag	180?	Angle (degrees)	Tolerance (degrees)	Flag	Epoch(MJD) Period(days)	Min.Phase Min.Error	Max.Phase Max.Error
1	N N N N			N N N N	N N			N			

Tar No	Monitoring Observations				Group Observations			Un-interrupt?	Coord-inated Obs.?	Add. Con-straints
	Flag No.	Geometric Factor	Interval (days)	Tolerance (%)	Flag	Group ID	Interval (days)			
1	N	1	1.000		N			P	N	N

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Cycle 09

TOO Details

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Tar No	Trig-ger?	Alternates		Response Window			Prob-ability	Initial Alloc.	Followup Observations				Obs.Params specified by Target No.
		Group Name	Nbr. Req.	Type (days)	Start	Stop			Order	Obs. Time	Interval (days)	Tolerance (%)	
									1				
									2				
									3				
									4				
									5				
									6				
									7				
									8				

TOO Trigger Criteria

TOO Followup Instructions

If this TOO is a resubmission of a proposal approved in the previous Cycle, should this TOO be canceled if the previous Cycle TOO is triggered?

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Target Remarks

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Tar No	Remarks Coordinated Observation: Observatories