

Proposal for *Chandra* Observations

Cycle 09

Cover Page

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Proposal Title The Cool Cores of REXCESS Clusters of Galaxies			
Subject Category CLUSTERS OF GALAXIES			
Proposal Type LP	Linked Proposal N	Distr. Medium WWW ONLY	Proprietary Rights S
Total Requested Time 594.00	Number of Targets 9		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 to obtain high-resolution ACIS observations of 9 high-brightness clusters of galaxies from the XMM REXCESS cluster sample, which was selected from the REFLEX sample so as to minimize morphological bias while spanning a wide range in luminosity, mass, and temperature. Over 1 Msec of XMM time has been devoted to this sample for the purpose of measuring cluster scaling relations. Chandra is needed to constrain the incidence of AGN feedback by measuring central entropy and temperature gradients and searching for X-ray cavities in the REXCESS clusters with highly peaked central brightness profiles. Because the full sample is designed to include all morphological types, our results can be directly compared to volume-limited samples of simulated clusters.

Proposal Number 09800713

Date: 2007-03-15

Admin. use only

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General Form

PI Dr. Megan Donahue		
Proposal Title The Cool Cores of REXCESS Clusters of Galaxies		
Co-Investigator(s)		
First Name	E-Mail	Country
Last Name	Institute	
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Steen Hansen	hansen@physik.unizh.ch UNIVERSITY OF ZURICH	Switz
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:		

Institute Endorsement

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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Target Summary

PI Dr. Megan Donahue
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Tar No	Target Name	(J2000) R.A. Dec.	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	RXJ0605.8-3518 / Abell 3378 NONE RICH CLUSTER (LOW-REDSHIFT)	06 05 52.8 -35 18 02.0		N	44.0000	ACIS-I NONE N	1.360000 1.360000	N Y	N
2	RXCJ1044.5-0704 / Abell 1084 NONE RICH CLUSTER (LOW-REDSHIFT)	10 44 33.0 -07 04 22.0		N	44.0000	ACIS-I NONE N	1.360000 1.360000	N Y	N
3	RXCJ1141.4-1216 / Abell 1348 NONE RICH CLUSTER (LOW-REDSHIFT)	11 41 24.3 -12 16 20.0		N	64.0000	ACIS-S NONE N	0.940000 0.940000	N Y	N
4	RXCJ1302-.8-0230 / Abell 1663 NONE RICH CLUSTER (LOW-REDSHIFT)	13 02 50.7 -02 30 22.0		N	86.0000	ACIS-S NONE N	0.700000 0.700000	N Y	N
5	RXCJ0345.7-4112 / S0384 NONE RICH CLUSTER (LOW-REDSHIFT)	03 45 45.7 -41 12 27.0		N	75.0000	ACIS-S NONE N	0.800000 0.800000	N Y	N
6	RXCJ2014.8-2430 NONE RICH CLUSTER (LOW-REDSHIFT)	20 14 49.7 -24 30 30.0		N	29.0000	ACIS-I NONE N	2.060000 2.060000	N Y	N

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Tar No	Target Name	(J2000) R.A. Dec.	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.		
7	RXCJ2149.1-3041 / Abell 3814 NONE RICH CLUSTER (LOW-REDSHIFT)	21 49 07.4 -30 41 55.0		N	53.0000	ACIS-S NONE N	1.130000 1.130000	N Y	N
8	RXCJ2319.6-7313 / Abell 3992 NONE RICH CLUSTER (LOW-REDSHIFT)	23 19 41.8 -73 13 51.0		N	88.0000	ACIS-S NONE N	0.680000 0.680000	N Y	N
9	RXJ0211-4017 / Abell 2984 NONE RICH CLUSTER (LOW-REDSHIFT)	02 11 25.5 -40 17 12.0		N	111.000	ACIS-S NONE N	0.540000 0.540000	N Y	N

ACIS Parameters (Required, Pileup, Telemetry Parameters)

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Tar No.	Exposure Mode	CCDs On						Most Eff.	Subarray		Alternating Exp.		Energy Filter		Use Spatial Windows
	Telemetry. Format	S0	S1	S2	S3	S4	S5	CCD Time	Type	No.Rows	Y/N	Exp.Time	Y/N	Lower Thrsh. Energy Range	
1	TE VF		Y	Y	Y	Y		Y	NONE		N		N		N
2	TE VF		Y	Y	Y	Y		Y	NONE		N		N		N
3	TE VF		N	N	01	02		Y	NONE		N		N		N
4	TE VF		N	N	01	02		Y	NONE		N		N		N
5	TE VF		N	N	01	02		Y	NONE		N		N		N
6	TE VF		Y	Y	Y	Y		Y	NONE		N		N		N
7	TE VF		N	N	01	02		Y	NONE		N		N		N
8	TE VF		N	N	01	02		Y	NONE		N		N		N
9	TE F		N	N	01	02		Y	NONE		N		N		N

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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

Tar No	Monitoring Observations				Group Observations			Un- inter- rupt?	Coord- inated Obs.?	Add. Con- straints
	Flag	No.	Geometric Factor	Interval (days)	Tolerance (%)	Flag	Group ID	Interval (days)		

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

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TOO Followup Instructions

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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

PI	Dr. Megan Donahue
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Tar No	Remarks Coordinated Observation: Observatories