



10791 - Proper motion may nail counterpart of unique X-ray pulsar

Cycle: 15, 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) 1E1207-5209	WFPC2	1	09-Mar-2007 21:00:43.0	yes

1 Total Orbits Used

ABSTRACT

1E 1207.4-5209 is one of the most puzzling X-ray compact sources in the Galaxy. Long known to be a radio-quiet Neutron Star (NS) embedded in a young (~7000 y) supernova remnant, it displays a unique phenomenology, including multiple cyclotron absorption features in its thermal X-ray spectrum, as well as a possible non-monotonous evolution of its 424 ms rotational period. A candidate optical counterpart (I~23.4) with very red colours (not consistent with the expected emission of a NS, but rather with a low-mass stellar companion, or a fossil disk) was singled out with HST/ACS in 2003, at the margin of the Chandra error box. In order to test the reality of such an association, we propose to take advantage of the high

space velocities characteristics of NSs to search for the expected displacement (~150 mas in the NE direction) of the candidate counterpart over a 3 years time span. One orbit observation, either unveiling the displacement or ruling it out, will settle the problem of the optical identification of 1E1207.4-5209. We stress that a null result would also be important for the understanding of this source.

OBSERVING DESCRIPTION

We plan to perform accurate positioning of the pulsar 1E1207-5209 accurate counterpart with the ACS/WFC

Visit	Proposal 10791, Visit 01 Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(1)		1E1207-5209	RA: 12 10 0.8260 (182.5034417d) Dec: -52 26 28.43 (-52.44123d) Equinox: J2000		V=26.8+/-0.2	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) 1E1207-5209	WFPC2, IMAGE, PC1-FIX	F814W					1000.0 Secs X 2 [==>(Copy 1, Split 1)] [==>(Copy 1, Split 2)] [==>(Copy 2, Split 1)] [==>(Copy 2, Split 2)]
Orbit Structure	Orbit 1 Server Version: 20070302									