Hubble Space Telescope

Cycle 16 GO Proposal

Mapping the nebula surrounding the enigmatic X-ray source at the center of the Vela Jr SNR

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Scientific Category: HOT STARS

Scientific Keywords: MASSIVE STARS, NEUTRON STARS AND PULSARS, SUPERNOVA REMNANTS

Instruments: WFPC2

Proprietary Period: 12

Orbit Request	Prime	Parallel
Cycle 16	1	0

Abstract

A compact X-ray source, showing nothing but steady unpulsed thermal emission, lies close to the center of the young and nearby supernova remnant dubbed "Vela Jr". It is a typical member of a class of enigmatic sources, supposed to be the youngest members of the radio-quiet neutron star family. Quite surprisingly, we discovered in ground-based optical observations a small Halpha nebula spatially coincident with the X-ray source. Such a nebula potentially carries very important information on the nature of the X-ray source, which remains elusive in spite of large observational efforts. We propose to use the WFPC2 to collect high resolution Halpha images of the nebula in order to resolve its structure, to understand its nature, and to identify its connection with the X-ray source. Addressing all these points will also have important implications for our interpretation of the compact X-ray source and on of other objects of the same class.

Dr. Andrea De Luca

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Investigators:

	Investigator	Institution	Country
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Number of investigators: 6

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Target Summary:

Target	RA	Dec	Magnitude
CXOJ085201.4-461753	08 52 1.3800	-46 17 53.34	R=23.1 +/- 0.2

Observing Summary:

Target	Config Mode and Spectral Elements	Flags	Orbits
CXOJ085201.4-461753	WFPC2 Imaging F656N		1

Total prime orbits: 1