Observing Application

Date :	Aug, 27 2012
Proposal ID :	VLA/12B-375
Legacy ID :	AN157
PI :	Thomas Nelson
Type :	Director's Discretionary Time - Target of Opportunity
Category :	Energetic Transients and Pulsars
Total Time :	32.0

The E-Nova Project: Understanding Gamma-Ray Emission in Classical Novae

Abstract:

Novae are the most common stellar explosions, and key in understanding whether an accreting white dwarf can become a Type Ia supernovae. But major uncertainties remain regarding how the thermonuclear burning proceeds, how material from the core of the white dwarf is mixed into the envelope, and how the envelope is ejected. The long-term scientific aim of our E-Nova Project is to resolve these uncertainties. To accomplish this goal, we require multi-frequency radio monitoring of a diverse sample of novae throughout their radio rise and decay.

Adding to the diverse and surprising behavior of novae, the expectation that standard novae explosions should not produce detectable gamma-ray emission was recently turned on its head with Fermi detections of two classical novae this summer. Here we request 32 hours of VLA observations to provide critical insights into the source of the gamma rays, while tracing the detailed energetics and dynamics of the mass ejections themselves.

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Related proposals:

S4322, 12A-483

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Polarimetry, Single Pointing(s), Monitoring

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Ku	Any	Ku Band 2 cm 12000 - 18000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 13500.0,17000.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
Ka	Any	Ka Band 0.9 cm 26500 - 40000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 26500.0,36000.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
L	Any	L Band 20 cm 1000 - 2000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 1250.0,1750.0 MHz Subband Bandwidth: 64.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 1000.0 kHz Total Bandwidth: 1,024.00 MHz
C	Any	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 4700.0,7400.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz

Testing Resource Images

Sources:

Name	Position	Velocity	Group