



Observing Application

Date : Apr, 05 2012
Proposal ID : VLA/12A-466
Legacy ID : AS1185
PI : Christopher Stockdale
Type : Director's Discretionary
Time - Target of Opportunity
Category : Energetic Transients and Pulsars
Total Time : 48.0

SN2012aw: VLA Monitoring of a Type IIP Supernova

Abstract:

We propose to observe the type-IIP Supernova (SN) 2012aw in M95 with the VLA. Our initial detections at K and X band on 2012-Mar-24 indicate it is a radio supernova (ATEL#4010,4012). Subsequent VLA observations by our collaboration securely detect SN 2012aw and demonstrate evolving radio emission from 5.0-23 GHz. We are now observing its turn-on phase at multiple low frequency bands. Our proposed OSRO observations will determine contributions from various radio emission and absorption mechanisms (Weiler et al. 2002,ARA&A,40,387). This will be critical in determining the mass-loss history and measuring the pre-explosion evolution of the Red-Super Giant progenitor for this event. Theoretical models do not well constrain the upper mass limit of type IIP SNe. While, only four extragalactic type IIP supernovae have ever been detected in the radio, the furthest at 12Mpc, these are the least luminous and least studied of all core-collapse SNe at radio wavelengths.

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Related proposals:

12A-349

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
LBand	C	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: 64.0 MHz Total Bandwidth: 1,024.00 MHz
SBand	C	S Band 10 cm 2000 - 4000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 2500.0,3500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz
CBand	C	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 5000.0,6000.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz
XBand	C	X Band 3.6 cm 8000 - 12000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 8500.0,9500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz
KuBand	C	Ku Band 2 cm 12000 - 18000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 13500.0,14500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz
KBand	C	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 21500.0,22500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 128.0 MHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position	Velocity	Group
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