



Observing Application

Date : May, 02 2008
Proposal ID : VLA/08A-241
Legacy ID : AP558
PI : Miguel Perez-Torres
Type : Rapid Response - Target
of Opportunity
Category : Extragalactic
Total Time : 2.5

Radio detection of two dust-enshrouded supernovae in IRAS 17138-1017

Abstract:

We request Target of Opportunity observations at 8.4 and 22 GHz using the VLA in C configuration, aimed at detecting the radio emission from two dust-enshrouded supernovae which we have discovered in the near-infrared, within the nearby luminous infrared galaxy IRAS 17138-1017 ($D = 75$ Mpc).

Both supernovae exploded outside the nuclear region, so their radio emission should be easily detected as compact components within the background radio emission of the galaxy. One of the supernovae (SN 2008XX) is very young (about 3 months old) and likely to be around its maximum. Therefore urgent, high-resolution, high-sensitivity radio observations would (i) confirm its core-collapse origin; and (ii) characterize the supernova-circumstellar medium interaction within the dense and dusty starburst environment. Since SN 2000ft is so far the only other radio supernova in a starburst galaxy caught close to its peak, this is a rare opportunity. In addition, if the older supernova (about 3.5 yr old), happens to be a long-lasting event similar to SN 2000ft or SN 2004ip (for which we have carried out successful detections with the VLA), we should detect it as well, despite the time elapsed since its explosion.

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Related proposals:**Joint:**

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
vla-xband	Any	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 8435.1,8485.1 MHz Bandwidth: 50 MHz
vla-kband	Any	K Band 1.3 cm 18000 - 26500 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 22485.1,22435.1 MHz Bandwidth: 50 MHz

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
IRAS17138	17:16:35.8 00:00:00.0	-10:20:39 00:00:00	J2000	Velocity : 0	Unspecified Group

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
sn04ip-xk-vla	2.50	1	0 day	15:30:00	21:30:00	15

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
sn04ip-xk-vla	IRAS17138	vla-xband	1.25 hour	0.022 mJy/bm
sn04ip-xk-vla	IRAS17138	vla-kband	1.25 hour	0.046 mJy/bm

Present for observation: no

Staff support: Consultation

Plan of Dissertation: yes