



# Observing Application

Date : Oct, 01 2009  
 Proposal ID : VLA/09B-219  
 Legacy ID : AO256  
 PI : Eran Ofek  
 Type : Rapid Response - Target of Opportunity  
 Category : Extragalactic  
 Total Time : 5.0

## PTF09cnd - A pulsational pair instability SN powered by ejecta interaction

### Abstract:

Using the Palomar Transient Factory (PTF) recently we have found three transients that, based on the existing evidence, are consistent with pulsational pair instability supernova. The tremendous luminosity of these events (abs. mag. -23 in UV and visible light) is produced by collision of their ejecta with high velocity shells from previous pulsational events. Here we suggest to look for a radio signature of these interacting high-mass, high-velocity shells. We suggest to carry out VLA continuum observations at L, C and X-bands of the nearest ( $z=0.26$ ) transient PTF09cnd.

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### Related proposals:

### Joint:

Not a Joint Proposal

### Observing type(s):

Continuum

### VLA Resources

Name	Conf.	Frontend & Backend	Setup
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Name	Conf.	Frontend & Backend	Setup
DnC-L	DnC	L Band 20 cm 1000 - 2000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 1464.9,1385.1 MHz Bandwidth: 50 MHz
DnC-C	DnC	C Band 6 cm 4000-8000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 4885.1,4835.1 MHz Bandwidth: 50 MHz
DnC-X	DnC	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 8435.1,8485.1 MHz Bandwidth: 50 MHz
D-L	D	L Band 20 cm 1000 - 2000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 1464.9,1385.1 MHz Bandwidth: 50 MHz
D-C	D	C Band 6 cm 4000-8000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 4885.1,4835.1 MHz Bandwidth: 50 MHz
D-X	D	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 8435.1,8485.1 MHz Bandwidth: 50 MHz

### Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
PTF09cnd	16:12:08.9 00:00:00.5	+51:29:16 00:00:00	J2000	Redshift : 0.258	PTF

### Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Trigger1	2.50	1	0 day	11:00:00	21:00:00	0
Trigger2	2.50	1	0 day	11:00:00	21:00:00	0

### Session Constraints:

Name	Constraints	Comments
Trigger1		To be observed as soon as possible.

Name	Constraints	Comments
Trigger2		We request this set of observations to be scheduled 6 weeks after the first set of observations under Trigger 1.

**Session Source/Resource Pairs:**

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Trigger1	PTF09cnd	DnC-X	1.0 hour	0.03 mJy/bm	
Trigger1	PTF09cnd	DnC-C	1.0 hour	0.05 mJy/bm	
Trigger1	PTF09cnd	DnC-L	0.5 hour	0.09 mJy/bm	
Trigger2	PTF09cnd	D-L	0.5 hour	0.09 mJy/bm	
Trigger2	PTF09cnd	D-C	1.0 hour	0.05 mJy/bm	
Trigger2	PTF09cnd	D-X	1.0 hour	0.03 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no

