**External Collaborator MOU — Alessandra Corsi**

1. **Proposed contribution to a ZTF Key Project**

The focus of the proposed collaboration is a systematic radio (VLA) follow-up of Ic-BL supernovae discovered by ZTF. The primary goal is to construct the largest sample of Ic-BL supernovae with significant radio constraints in search for engine-drive explosions (including off-axis long gamma-ray bursts). In the past, these type of searches have been limited by the small number of nearby Ic-BL SNe available to the community. This project is also a key component of Anna Ho’s thesis (in fact Corsi and Ho have already been collaborating on this project).

Corsi has been part of PTF/iPTF, and led the radio follow-up of Ic-BL in that project. Some examples of publications that resulted from the VLA+PTF/iPTF BL-Ic project are:

1. **Corsi, A.**, Cenko, S.B., Kasliwal, M.M., Quimby, R., Kulkarni, S.R. et al., "[iPTF17cw: An engine-driven supernova candidate discovered independent of a gamma-ray trigger](http://adsabs.harvard.edu/abs/2017arXiv170600045C)", The Astrophysical Journal, 847, 54 (2017).
2. **Corsi, A.**, Gal-Yam, A., Kulkarni, S.R., Frail, D.A., Mazzali, P.A., et al., "[Radio Observations of a Sample of Broad-line Type Ic Supernovae Discovered by PTF/IPTF: A Search for Relativistic Explosions](http://adsabs.harvard.edu/abs/2016ApJ...830...42C)", The Astrophysical Journal, Volume 830, Issue 1, article id. 42, 18 pp. (2016).
3. **Corsi, A.**, Ofek, E., Gal-Yam, A., Frail, D.A., Kulkarni, S.R., et al., "[A Multi-wavelength Investigation of the Radio-loud Supernova PTF11qcj and its Circumstellar Environment](http://adsabs.harvard.edu/abs/2014ApJ...782...42C)", The Astrophysical Journal, Volume 782, Issue 1, article id. 42, 18 pp. (2014).
4. **Corsi, A.**, Ofek, E., Gal-Yam, A., Frail, D.A., Poznanski, D., et al., "[Evidence for a Compact Wolf-Rayet Progenitor for the Type Ic Supernova PTF 10vgv](http://adsabs.harvard.edu/abs/2012ApJ...747L...5C)", The Astrophysical Journal Letters, Volume 747, Issue 1, article id. L5, 5 pp. (2012).

Corsi has expertise in radio observations of different types of transients, and has an existing successful VLA + Chandra program for Ic-BL discovered by ZTF, which she has already used to follow up several sources (ZTF18aaacwya, ZTF18aaqjovh, ZTF18abklarx, ZTF18abcfdzu, and ZTF18abukavn)..

**(2) List all personnel**

Alessandra Corsi

**(3) Observing resources**

VLA: 40 hours (approved and already triggered multiple times)

Chandra: 60 ks (approved and already triggered multiple times)

Swift: 45 ks Pending at the time of writing

**(4) Points of contact (POC) in the Partnership**

The chief points of contact will be Anna Ho and Shri Kulkarni.

**(5) Proposed publications**

The expected publications are as follows:

* A catalog of all the BL-Ic SNe discovered by ZTF and followed-up with the currently approved VLA+Chandra programs;
* Single papers for any significant event for which bright radio emission is discovered.

**(6) Required access to ZTF data**

Required access is to the prompt alert of the Ic-BL candidate, including photometry and position and spectroscopic classification. This is required in order to decide whether to trigger the VLA and Chandra, and cross-check the position of the transient and the host with the radio source, if there is one. Furthermore, with access to the Marshal, Corsi can upload radio images and flux measurements for the partnership to access.