(Some of) Neil’s contributions to GW170817

E. Troja
UMD/NASA/GSFC
The beginning
Search for an EM counterpart

GALAXY STRATEGY FOR LIGO-VIRGO GRAVITATIONAL WAVE COUNTERPART SEARCHES

Neil Gehrels¹, John K. Cannizzo²,³, Jonah Kanner⁴, Mansi M. Kasliwal⁵, Samaya Nissanka⁶, and Leo P. Singer¹,⁷

¹ NASA Goddard Space Flight Center, Mail Code 661, Greenbelt, MD 20771, USA
² CRESST and Astroparticle Physics Laboratory, NASA/GSFC, Greenbelt, MD 20771, USA
³ Department of Physics, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250, USA
⁴ LIGO, California Institute of Technology, Pasadena, CA 91125, USA
⁵ Observatories of the Carnegie Institution for Science, 813 Santa Barbara Street, Pasadena, CA 91101, USA
⁶ Institute of Mathematics, Astrophysics and Particle Physics, Radboud University, Heyendaalseweg 135, 6525 AJ Nijmegen, The Netherlands

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ABSTRACT

In this work we continue a line of inquiry begun in Kanner et al. which detailed a strategy for utilizing telescopes with narrow fields of view, such as the Swift X-ray Telescope (XRT), to localize gravitational wave (GW) triggers from LIGO/Virgo. If one considers the brightest galaxies that produce ~50% of the light, then the number of galaxies inside typical GW error boxes will be several tens. We have found that this result applies both in the early

Kanner+12, Gehrels+16
Optical discovery

Coulter+17
Tanvir+17, Arcavi+17, Sand+17, Soares-Santos+17, Lipunov+17,
Swift contribution

Not a typical afterglow.
First evidence of a blue kilonova.

Evans+17
GW170817 campaign
Neil’s advice

If we can get it, then we should jump on it
Kilonova: results and open questions

Troja+17

Plan+17, Tanvir+17, Evans+17, Drout+17, Smartt+17, Arcavi+17, Kasen+17, Kasliwal+17, Chornock+17 and many more
Finally the afterglow
Last to arrive, last to leave

Troja+18, Piro+18

D’Avanzo+18, Ruan+18, Pooley+18, Margutti+18, Nynka+18, Alexander+18 and many more
The jet of GW170817: relativistic or choked?

Troja+17, Troja+18, Piro+18
Hallinan,Corsi+17, Mooley+17, Dobie+18
Future EM counterparts: what to expect?

[Graph showing luminosity over time for different angles and sources such as Swift and Chandra, courtesy of G. Ryan and H. vanEerten]
The real beginning: Neil’s vision
Thank you
Neil!