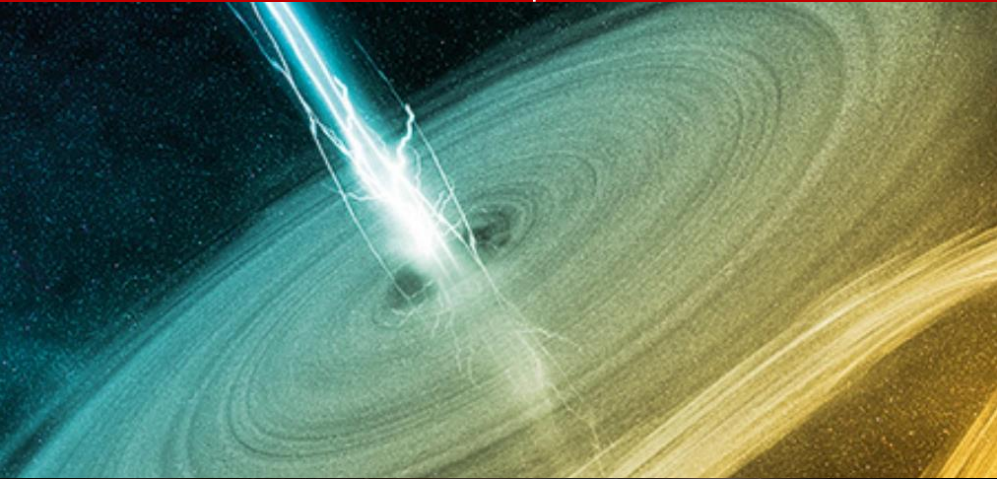


# Multi-messenger and high-energy astrophysics

MULTI-MESSENGER  
ASTROPHYSICS



ZADKO TELESCOPE



HIGH-ENERGY ASTROPHYSICS



GRAVITATIONAL WAVE SEARCHS FOR FAST  
RADIO BURSTS



Eric Howell



David Coward



Bruce Gendre

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## A vibrant group at the heart of the Physics Department of UWA

- One Professor, two full time researchers
- Three PhD students
- Five undergraduates

## A direct access to key and state of the art facilities

- Optical, radio, and gravitational wave observatories
- Space detectors of X-rays and Gamma-rays

## Collaborators located all around the globe...

- USA, Chile, France, Italy, Spain, Netherlands

## And in the best Australian universities...

- ANU, Swinburne, Melbourne, Monash, Sydney



Eric Howell



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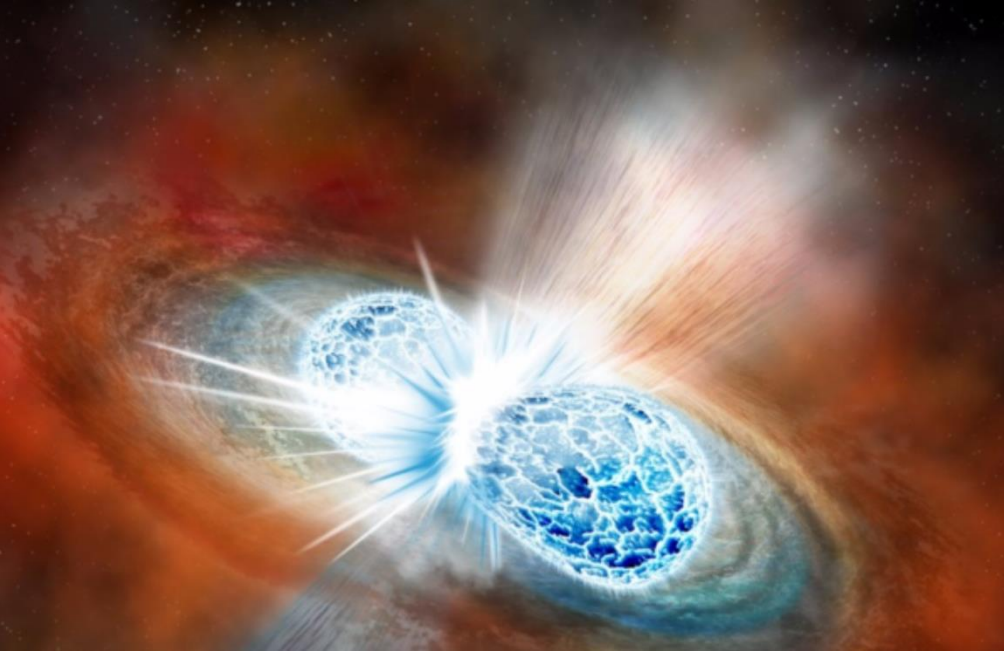
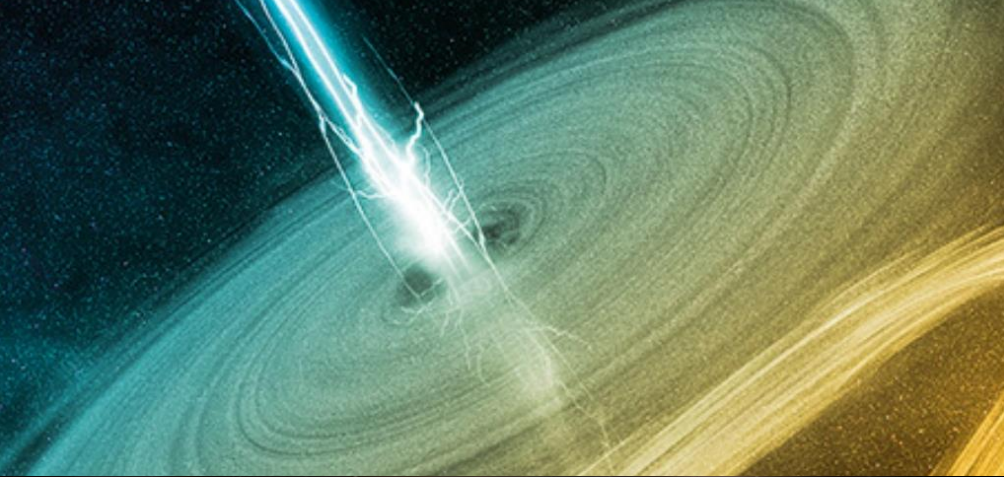
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## PROJECTS

- Multi-messenger parameter estimation i.e. gamma ray burst luminosity function, inferring relativistic jet profiles
- Multi-messenger event rates, predictions for future detectors

## SKILLS

Coding in Python, Matlab, Numerical simulation of source populations, Bayesian Inference MCMC

## COLLABORATIONS

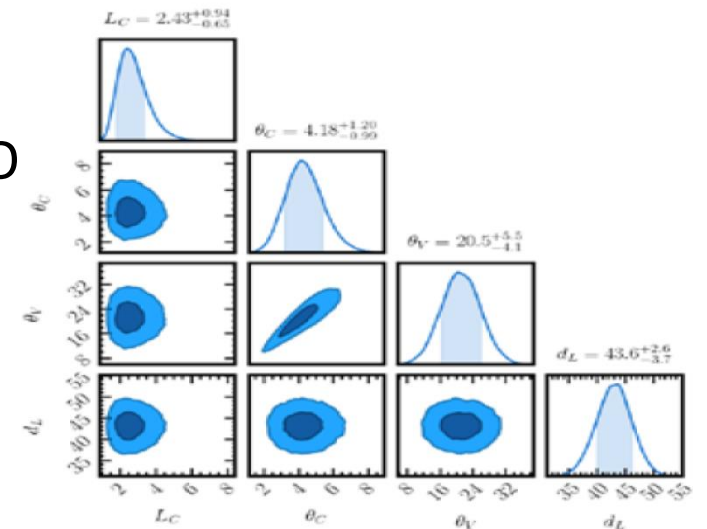
US, Europe, OzGrav, NASA, LIGO

## CONTACT

Eric Howell

[eric.howell@uwa.edu.au](mailto:eric.howell@uwa.edu.au)

Room 2.65 Physics



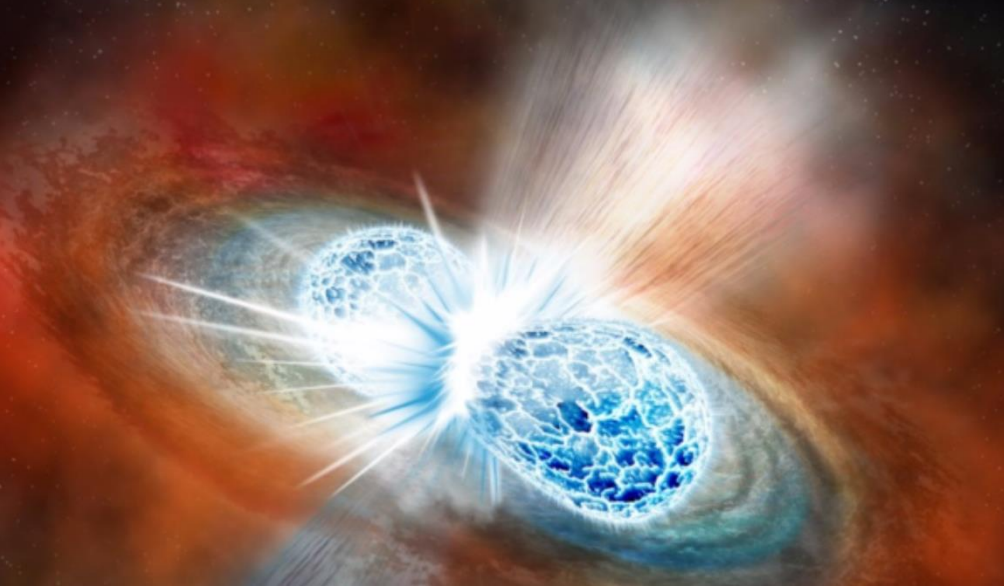
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## PROJECTS

- **Space industry** Space Situational Awareness



NUMERICA  
CORPORATION



- Optical transients - optical counterparts to gravitational waves, gamma-ray bursts, fast radio bursts, Near Earth Orbits

**SKILLS** Robotic astronomy, space industry related skills  
Image analysis

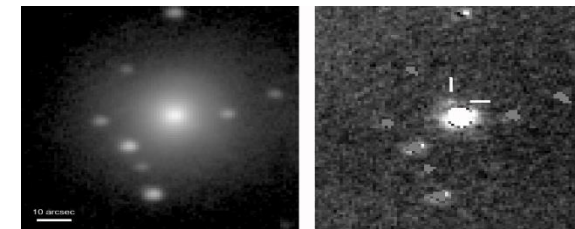
**COLLABORATIONS** Worldwide, France, Italy, USA, China, ESA, CNES

## CONTACT

David Coward,

[David.coward@uwa.edu.au](mailto:David.coward@uwa.edu.au)

Room 2.63 Physics



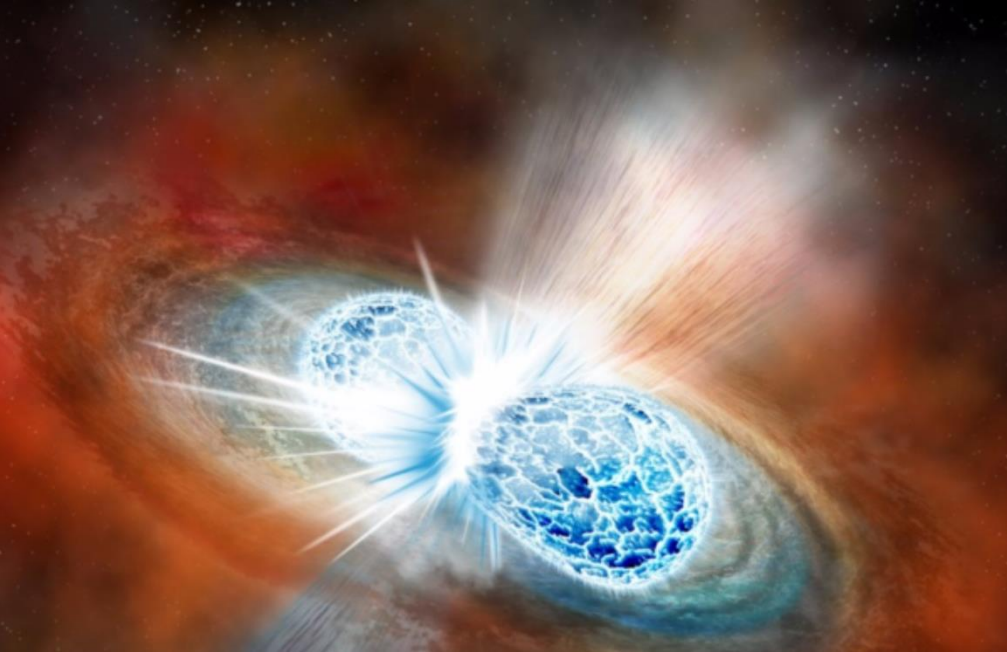
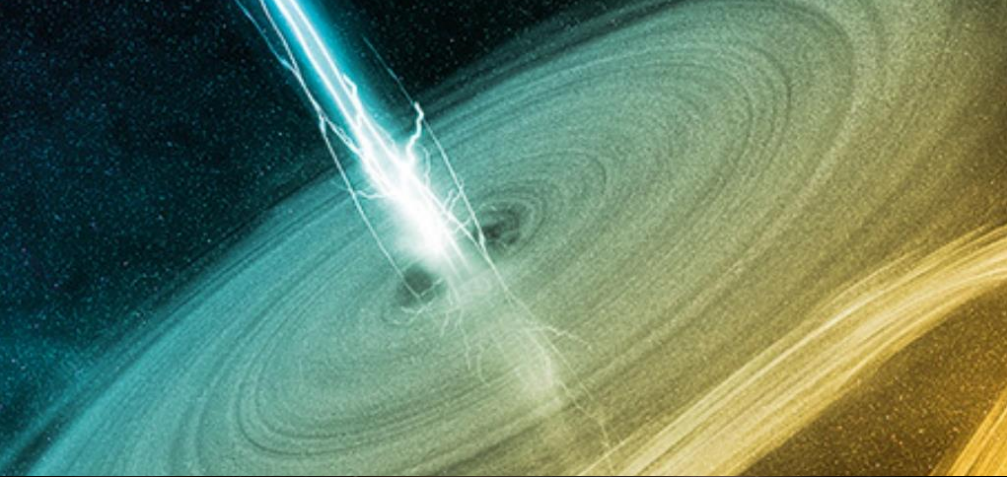
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## Topics offered

- Studies of the physics of ultra-relativistic jets and their interactions with the surrounding medium
- Understanding the nature of ultra-long and sub-luminous gamma ray bursts
- Studies of the event horizon evolution during the merger of two black holes

## COLLABORATIONS

France, Italy, USA, China

## CONTACT

Bruce Gendre

[bruce.gendre@uwa.edu.au](mailto:bruce.gendre@uwa.edu.au)

Room G13 Physics

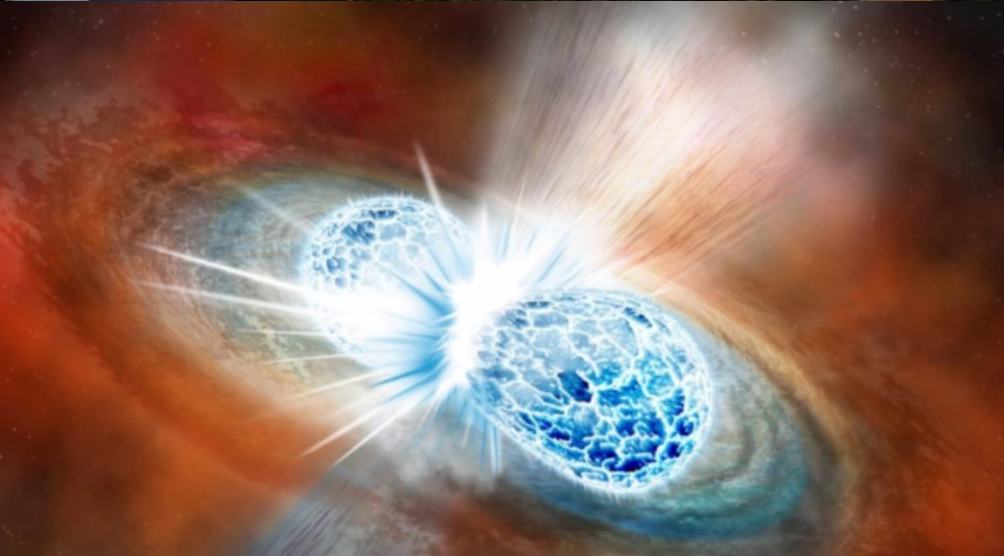
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## PROJECTS

- Search Gravitational Wave data for counterparts to Fast Radio Bursts for O3a LIGO search paper
- Uses an un-modelled burst search (no GW source assumptions)

## SKILLS

Run LIGO X-pipeline search, data analysis and interpretation

## COLLABORATIONS

US, Canada, Netherlands, India,  
LIGO (GRB/FRB group), OzGrav

## CONTACT

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