

## Fast Radio Bursts

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Fast radio bursts (FRBs) are millisecond-duration radio flashes of unknown physical origin. We now know that they originate at cosmological distances and hence must be exceptionally luminous. As such, FRBs promise to provide a new view of extreme astrophysics in action. At the same time, FRBs also promise to be unique probes of the ionised material within and between galaxies. Though only a hundred FRBs have been published to date, their all-sky event rate is estimated to be in the thousands per day. A new generation of wide-field radio telescopes has started to detect FRBs in earnest, and distributed radio telescope arrays are providing the necessary localisation precision to identify host galaxies. Nonetheless, the FRBs remain enigmatic. While some sources produce repeat bursts, most have only been seen once. Could there be multiple types of FRB sources? I will present our current observational understanding in this rapidly evolving field, and comment on how we can differentiate between the dozens of proposed FRB models. Multi-wavelength characterisation of FRBs, including deep gamma-ray observations, can provide critical insight.

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