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## The Deepening Mystery of Fast Radio Bursts

A decade after their discovery, Fast Radio Bursts are not yet well understood. Their dispersive arrival times suggest an extragalactic origin, and imply radio luminosities that are orders of magnitude larger than other short-duration radio transients. With recent Arecibo observations, we have discovered that at least one of these FRBs is a repeating source, ruling out cataclysmic models in that one instance. Further, with a massive, data-intensive campaign of fast-dump observations at the Karl G. Jansky Very Large Array, we have localized the source of these repeating bursts to sub-arcsecond precision and identified its host counterpart. Our redshift measurement with Gemini puts the host dwarf galaxy at  $z=0.193$ , implying a gigaparsec distance, while the bursts coincide with a compact, persistent radio source whose nature is as yet unexplained. There has been a tremendous outpouring of theoretical modeling for FRBs, implicating young magnetars associated with superluminous supernovae, active galactic nuclei, and other, more exotic possibilities. Meanwhile, new observational results are adding to the mystery of Fast Radio Bursts.