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Fast Radio Bursts, Morphology and Repetition

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Fast radio bursts (FRBs) are millisecond-duration extragalactic radio transients of elusive origin that were first discovered in 2007. The bursts exhibit a variety of time-frequency structures, shaped by an unknown emission mechanism and transformed by propagation through an ionized and inhomogeneous medium. More than twenty FRBs have been observed to repeat, which has ruled out a cataclysmic origin for these source and allows for detailed multi-wavelength follow-up observations. It is as-of-yet unclear whether all FRBs repeat and if there are multiple populations of FRBs. In this talk, I will summarize what we know about the morphology of FRBs and about repeating sources of FRBs. I will highlight how observations have constrained the FRB emission mechanism. I will also present a comparison between burst properties of repeaters and apparent non-repeaters in the first CHIME/FRB catalog and I will show how we can differentiate repeating sources of FRBs by their burst morphologies.