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A Synoptic View of Fast Radio Bursts with CHIME

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The Canadian Hydrogen Intensity Mapping Experiment (CHIME) is the only radio telescope capable of instantaneously observing hundreds of square degrees with the sensitivity of a 100-meter scale aperture. As a result, its transient search instrument, CHIME/FRB, has detected roughly 700 fast radio bursts (FRBs) in its first year of full operations—increasing the known sample by an order of magnitude. CHIME/FRB thus represents a new era in the study of these enigmatic, extragalactic radio flashes and presents opportunities to use them as probes of the Universe. I will show how CHIME’s novel, digitally-driven design, coupled with the availability of mass-produced analogue and digital hardware, has enabled this leap in telescope capabilities. I will then give an overview of CHIME/FRB’s most recent results and conclude by describing efforts to augment CHIME’s capabilities by adding outrigger telescopes. These outriggers will be located across the continent and will precisely localize FRB sources using very long baseline interferometry.