Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Search for Nearby Neutron Star Mergers via Radio Flares KYUNG-HWAN LEE, IMRE BARTOS, University of Florida, GEORGE PRIVON, NRAO, JONAH ROSE, PAUL TORREY, University of Florida, UF COLLABORATION — The multi-messenger discovery of the neutron star merger GW170817 showed that nearby mergers may be common. However, this merger probably would have not been identified as nearby without its gravitational wave detection, raising the possibility that other nearby events may be hiding in plain sight. A possibility to uncover such nearby mergers from the past to search for their radio emission that can last for decades. Here we discuss the possibility that the radio transient FIRST J1419+3940, first observed in 1993 and still detectable, could have originated from a neutron star merger. I will show that its observed radio light curve is well reproduced by a merger model with astrophysically expected parameters. I will discuss clues that could differentiate the transient's neutron star merger origin from the alternative explanation—the afterglow of an off-axis long gamma-ray burst. Existing radio surveys likely already recorded multiple radio flares, informing us of the origin and properties of neutrons tar mergers and their role in the nucleosynthesis of the heaviest elements in the Universe.

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Date submitted: 11 Jan 2021 Electronic form version 1.4