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# **Joint Radio/Optical Observation of FRBs with Novel DSN Instrument**

**Walid Majid<sup>1</sup> Michael Shao<sup>2</sup> Daniel Hoppe<sup>2</sup> Russell Trahan<sup>2</sup>  
Robert Preston<sup>2</sup> Makan Mohageg<sup>2</sup> Charles Naudet<sup>2</sup> Chengxing Zhai<sup>1</sup>**

<sup>1</sup>Jet Propulsion Laboratory, <sup>2</sup>JPL

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FRBs are bright, milli-second duration radio pulses of unknown origin. Since their discovery in 2007, FRBs have been shown to have extragalactic origins and enormous energy outputs in the radio band alone. Hunting for FRBs and understanding their physical origin(s) have become a leading scientific goal in astrophysics. As neither the progenitors nor their emission mechanisms are known, simultaneous multi-wavelength studies of repeating FRBs would enable new tests of emission models.

In this presentation, we will describe a novel experiment currently under development at the NASA Deep Space Complex in Goldstone, CA, where we are planning on conducting simultaneous long-term radio and optical monitoring of repeating FRBs using a newly developed hybrid radio/optical system. The planned observations with the new facility once the instrument has been commissioned will enable precise measurements of the relative optical to radio energy flux of the bursts, a key observable for discriminating between the various proposed progenitors and emission mechanisms for FRBs.