

# MILLISECOND PULSARS: THE GIFTS THAT KEEP ON GIVING

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NRAO

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**4:00 P.M. NSH 118**

(Refreshments at 3:30 P.M. NSH 202)

There are about 2000 pulsars known, and while all of them as neutron stars are fascinating objects, the best and most exciting science comes from a very small percentage ( $\sim 1\%$ ) of exotic objects, most of which are millisecond pulsars (MSPs). These systems are notoriously hard to detect, yet their numbers have more than doubled in the past 5-6 years via surveys using the world's largest radio telescopes and the Fermi Gamma-ray Space Telescope. Timing observations of these new MSPs as well as much improved monitoring of previously known MSPs are providing a wealth of science. In this talk I'll cover three main areas in basic physics where systems like these are making an impact: strong-field tests of general relativity, the nature of matter at supra-nuclear densities (including the recent accurate measurement of a two Solar mass neutron star), and the direct detection of gravitational waves (e.g. NANOGrav) likely within the next decade.

Colloquium

All interested  
persons are  
cordially  
invited to  
attend.