

Abstract for an Invited Paper  
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**Pulsar timing and Gravitational Wave Detection: Building a galactic scale gravitational wave observatory**

FREDRICK A. JENET, The Center for Gravitational Wave Astronomy, University of Texas at Brownsville

We are entering a new stage in astrophysics, the era of gravitational waves. The detection and study of such waves will allow us to see the universe in a way never before possible. It turns out that observations of a set of exotic stars known as radio pulsars will enable us to detect and characterize nano-Hz gravitational waves. This talk will give an overview of this detection technique as well as discuss the various astrophysical phenomenon we will be able to study using nano-Hz gravitational waves.