

NANOGrav: Building the Strong Case for nHz Gravitational Waves with Pulsar Timing Arrays

Monday 19 February 2024 19:00 (1h 30m)

The North American Nanohertz Observatory for Gravitational Waves (NANOGrav) collaboration recently published its 15-Year Data Set, providing substantial evidence for a nHz background of gravitational waves and marking an exciting milestone for pulsar timing arrays. Since the publication of our 12.5-Year Data Set, which strongly suggested the presence of a common red noise process in NANOGrav's millisecond pulsar (MSP) timing data, we have added 21 new MSPs and 3 years of data. This lecture will provide an overview of NANOGrav's science, from radio observations of pulsars to interpreting nHz gravitational wave signals in the context of galaxy evolution and physics beyond the standard model. NANOGrav's participation in the International Pulsar Timing Array's Third Data Release effort, as well as what lies on the horizon for pulsar timing array experiments, will also be discussed.

Presenter: H. THANKFUL CROMARTIE (U.S. Naval Research Laboratory)

Session Classification: 特別講義 (Invited Lecture)