

## Pulsar timing and its applications

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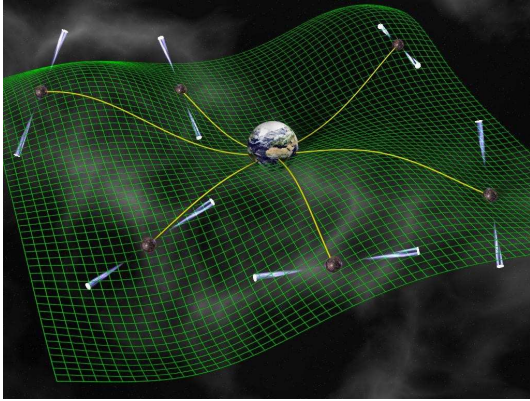


Figure 1: Gravitational-wave detection with Pulsar Timing Arrays. Image credit: D. J. Champion

Pulsar timing observations reveal a wide range of perturbations to the normally extremely stable pulse periodicity, allowing investigation of many areas of astrophysics. These investigations range from studies of neutron-star interiors using glitches through to tests of gravitational theories using double-neutron-star and other binary systems and searches for gravitational waves from the distant Universe using millisecond pulsars (Fig. 1). In between are studies of stellar winds in interacting binary systems and of AU-scale structure in the interstellar medium using dispersion and scintillation variations. These and other applications will be re-

viewed with the aim of illustrating the great power and versatility of pulsar timing.

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