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# Listen to Our Universe

*Tuesday, 10 July 2012 17:30 (2 hours)*

## Abstract content <br>   (Max 300 words)

For 50 years after Einstein predicted gravitational waves physicists considered them to be of academic interest only. It was not until after the pioneering work of Joseph Weber, and his reported discoveries that a growing number of physicists around the world started to develop different types of antennas to search for gravitational waves. Since Weber's first reports, which were never confirmed, the improvement in detectors has been quite remarkable. Relating them to optical telescopes, the improvement achieved so far is equivalent to the step from a 3 cm diameter optical telescope to a 3 m diameter instrument. In the next decade it is hoped that the improvement will be equivalent to a step up in size from 3 m to 3 km. At this sensitivity gravitational wave detection is practically certain, and the field of gravitational astronomy will be able to slowly map and explore the new spectrum, and the objects that it reveals. This Theory is applied to the binary Pulsar 913+16 which consists of two parts, the pulsar and the unseen companion, published data, such as masses: orbital period, eccentricity and periastron times, were used to calculate the rate at which orbit period will decay due to gravitational radiation. According to the general relativistic quadrupole formula, the orbital decay is , and the observed values produces .The excellent agreement provides evidence for the existence of gravitational radiation, as well as a rock-solid proof for general relativity. Graphs are also presented of eccentricity change, energy change, and observed-theoretical orbital period equivalence.

## Apply to be<br> consider for a student <br>   award (Yes / No)?

No

## Level for award<br> (Hons, MSc, <br>   PhD)?

M.Sc

## Main supervisor (name and email)<br>and his / her institution

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## Would you like to <br> submit a short paper <br> for the Conference <br> Proceedings (Yes / No)?

No

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**Session Classification:** Poster Session

**Track Classification:** Track D1 - Astrophysics