



Contribution ID: 2

Type: **Invited talk**

Testing gravity with pulsars in the Ska era (Invited talk)

Monday, 18 May 2015 15:20 (20 minutes)

Radio pulsars are neutron stars which emit collimated beams of radio waves, observed as pulses, in pace with the star rotation. In particular, some of the most rapidly rotating pulsars behave as highly stable clocks and the measurement of the times of arrival of their radio pulses can lead to an accurate determination of their positional, rotational and orbital parameters, as well as to put constraints to the properties of their space-time environment. Thus, on one side these pulsars can be exploited as tools for testing the gravity theories in a strong field regime.

On another side, the regular timing of a suitable array of these pulsars can lead in the near future to a direct detection of the gravitational waves in the nanoHz frequency range. This contribution will summarize the extraordinary impact of SKA on this field of research.

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Session Classification: Gravità e Fisica Fondamentale

Track Classification: Gravità e Fisica Fondamentale