Sixteenth Marcel Grossmann Meeting



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Searching for Pulsars in Globular Clusters with the MeerKAT Radio Telescope

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Globular clusters are known to host an unusually large population of millisecond pulsar when compared to the Galactic disk. This is thanks to the high rate of dynamical encounters occurring in the clusters that can create the conditions to efficiently recycle neutron stars in millisecond pulsars. The result is a rich population of pulsars with properties and companions difficult to replicate in the Galactic disk.

For these reasons, globular clusters have been and still are a prime target for astronomers searching for new and exciting pulsars. Because of the large distances of the globular clusters, the limiting factor inhibiting these discoveries is the sensitivity. The MeerKAT radio telescope, a 64-dish interferometer in South Africa, guarantees unrivalled sensitivity to look at the globular clusters in the southern sky.

Observations of well-studied globular clusters with MeerKAT have already returned more than 30 new pulsars with many more expected. These exciting discoveries will help us to understand more about the neutron star equation of state, stellar evolution, accretion physics and to hunt for intermediate mass black holes. In this talk I will present the prospects and current discoveries of the globular cluster working group in the MeerTIME and TRAPUM programmes.

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