

# Searching for Radio Pulsations from Four Southern Central Compact Objects

## Abstract

Central compact objects (CCOs) are X-ray point sources that are isolated, non-accreting, neutron stars found at the centers of several young supernova remnants (SNRs). At present, three out of ten well-established CCOs have detectable X-ray pulsations. However, previous targeted radio searches have found no radio emission associated with CCOs. The exact nature of CCOs is still far from being well understood. Deep targeted searches for radio pulsations are key to determining whether CCOs are intrinsically radio-quiet, or they are simply radio-faint. This has very important implications for the physical understanding of the different phenomenological classes of isolated neutron stars (INSs) and their evolution. Therefore, we request observations with MeerKAT to carry out a deep observation for four Southern CCOs (RX J0822.0-4300, CXOU J085201.4-461753, 1E 1207.4-5209 and 1WGA J1713.4-3949) to detect their possible radio pulsations, or in case of non-detections, to put the most stringent constraints on the pulsed radio emission of these objects. The proposed observations could result in the first radio emission CCO, and thus help resolve the mystery of its origin.