

SUPERNOVA REMNANTS IN THE MAGELLANIC CLOUDS OBSERVED AT THE MOLONGLO OBSERVATORY

A.J. Turtle
School of Physics
University of Sydney
New South Wales 2006
Australia

ABSTRACT. Radio surveys of the Magellanic Clouds at 843 MHz have been made with the Molonglo Observatory Synthesis Telescope. An initial catalogue (Mills et al. 1984) presented details of 38 supernova remnants detected by a combination of X-ray, optical and radio observations. The subsequent completion of the radio survey has revealed at least a further 17 remnants, mainly of large diameter and undetected by the Einstein X-ray Observatory. Though a few remnants have their radio emission concentrated towards their centre there is no evidence in the Magellanic Clouds for a Crab-like plerion (without an associated shell). The two well-established plerions 0540-693 (with optical and X-ray pulsar) and 0538-691 (N157B) appear to be connected with partial shells of strong radio emission which are relatively weak in optical emission lines (0538-691 is superposed on an HII region). Four sources which have a central concentration show larger optical and X-ray shells. The optical spectra of three of these (0505-679, 0509-675 and 0519-690) are dominated by the emission lines of hydrogen and Tuohy et al. (1982) argue that they are remnants of Type I supernovae. The fourth source (0453-685) which has detectable [OIII] emission may be an older but similar type of remnant. A further remnant 0509-687 (N103B) is compact but its radio diameter of 6 pc agrees with the published X-ray result.

References

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