## Q16a A New Radio Continuum Study of the Large Magellanic Cloud Supernova Remnant MC SNR J0519–6902

Rami Alsaberi (Gifu Uni), Miroslav Filipović (WSU), Hidetoshi Sano (Gifu Uni), Shi Dai (CSIRO), Frank Habrel (Max Planck), Patrick Kavanagh (Moynooth Uni), and the J0519–6902 team

Supernova remnants (SNRs) play an essential role in the structure of galaxies, enriching the Interstellar Medium (ISM) as well as having a significant impact on the structure and physical properties of the ISM. MC SNR J0519–6902 (also known as LHG 26) is a young SNR, approximately 2700 years old, situated in the Large Magellanic Cloud. Previous radio continuum studies revealed an average linear polarisation across the remnant of $1.5 \pm 0.6\%$ and $4.1 \pm 0.6\%$ at 1472 and 2368 MHz. More recent measurements indicated average linear polarisation values of $\sim$2.2% and $\sim$3.2% at 5500 and 9000 MHz. Additionally, the overall rotation measure across the remnant was estimated to be around $\sim$10 rad m$^{-2}$. In this work, we present a new radio continuum study of MC SNR J0519–6902 (Alsaberi et al., 2025). With a diameter of $\sim$8 pc, this SNR shows a radio ring-like morphology with three bright regions toward the north, east, and south. Its linear polarisation is prominent with average values of $5 \pm 1\%$ and $6 \pm 1\%$ at 5500 and 9000 MHz, and we find a spectral index of $-0.62 \pm 0.02$, typical of a young SNR. The average rotation measure is estimated at $-124 \pm 83$ rad m$^{-2}$ and the magnetic field strength at $\sim 11\,\mu$G. We also estimate an equipartition magnetic field of $72 \pm 5\,\mu$G and minimum explosion energy of $E_{\rm min} = 2.6{\times}10^{48}$ erg. Finally, we identified an H I cloud that may be associated with this remnant, located in the southeastern part of the remnant, along with a potential wind-bubble cavity.