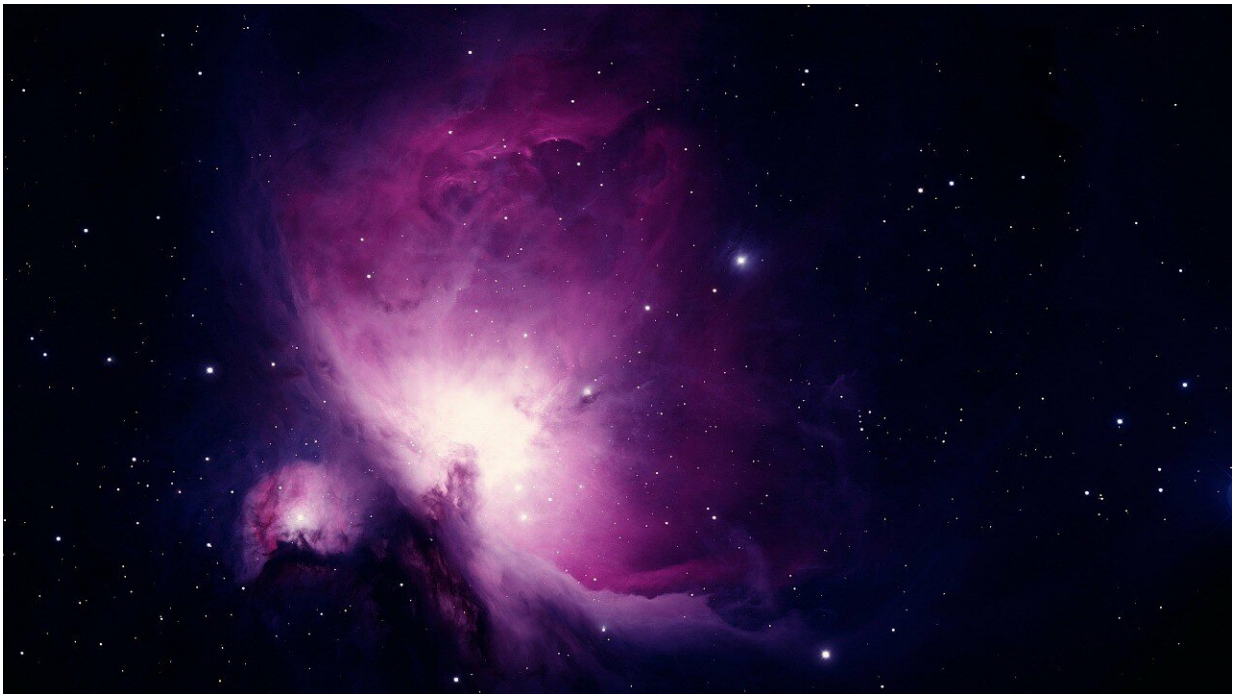


Astronomers discover ghosts of supernovas in nearby galaxy

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Credit: University of Manchester

Researchers from the University of Manchester, with international colleagues, have carried out a survey of a nearby galaxy.

Dr. Tana Joseph, from the Department of Physics and Astronomy, contributed to a survey of the nearby Small Magellanic Cloud (SMC), a nearby dwarf galaxy. Dr. Joseph is the first author of the resultant paper,

published in the journal *Monthly Notices of the Royal Astronomical Society*.

The researchers discovered two potential new supernova remnants—the cloud of gas and dust left over after a star explodes. In addition, they detected [radio signals](#) from more than 20 planetary nebulae which were already known from optical observations.

"This is an exciting time for the study of nearby [galaxies](#). These nearby external galaxies offer an ideal laboratory, since they are close enough to be resolved, yet located at relatively well-known distances," the authors write.

These observations were carried out as part of the part of the Evolutionary Map of the Universe (EMU) pilot survey project, using CSIRO's new Australian Square Kilometre Array Pathfinder (ASKAP) [radio](#) telescope.

Commenting on the survey's findings, Dr. Joseph said; "We can now combine this radio data with observations from optical, X-ray, [gamma-ray](#) and infrared telescopes, allowing us to explore the SMC and other galaxies in unprecedented detail."

The observations of the SMC were carried out at two different radio frequencies (960 MHz and 1320 MHz), with a sensitivity more than 4 times that of previous surveys of this galaxy. ASKAP has revealed over 7,000 unique radio sources in the direction of the SMC, many of them background galaxies shining through the SMC—more than all previous surveys combined.

The ASKAP EMU project is forecast to detect 70 million galaxies in five years. Previously, scientists have identified around 2.5 million galaxies in 40 years.

More information: T D Joseph et al. The ASKAP EMU Early Science Project: radio continuum survey of the Small Magellanic Cloud, *Monthly Notices of the Royal Astronomical Society* (2019). [DOI: 10.1093/mnras/stz2650](https://doi.org/10.1093/mnras/stz2650)

Provided by University of Manchester

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