



# Infrared and radio study of the W43 cluster: resolved binaries and non-thermal emission

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Context: The recent detection of very high-energy (VHE) gamma-ray emission from the direction of the W43 star-forming region prompted us to investigate its stellar population in detail in an attempt to see whether or not it is possible an association. Aims: We search for the possible counterpart(s) of the gamma-ray source or any hints of them, such as non-thermal synchrotron emission as a tracer of relativistic particles often involved in plausible physical scenarios for VHE emission. Methods: We data-mined several archival databases with different degrees of success. The most significant results came from radio and near-infrared archival data. Results: The previously known Wolf-Rayet star in the W43 central cluster and another cluster member appear to be resolved into two components, suggesting a likely binary nature. In addition, extended radio emission with a clearly negative spectral index is detected in coincidence with the W43 cluster. These findings could have important implications for possible gamma-ray emitting scenarios, which we also briefly discuss.

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