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RESEARCH THE RELATIVISTIC JET PRODUCED BY THE SOURCE GW170817 OBSERVED

It took thirty-three radio telescopes spread across five continents to measure the dimensions of the astrophysical source GW170817, detected in both gravitational waves and electromagnetic radiation.

The result was obtained by researchers from INAF National Institute for Astrophysics, INFN, University of Milano-Bicocca, GSSI Gran Sasso Science Institute and ASI Italian Space Agency, and published on Science. The study shows how a jet of energy and matter originated from the merge of two neutron stars, and propagated into the interstellar space at almost the speed of light. The two merging neutron stars released neutron-rich material into the surrounding space, which then formed heavy metals. The jet had to make its way through this material. Had it not been able to emerge, it would have deposited its energy, causing a quasi-spherical explosion. This information adds another element to our understanding of these phenomena: thanks to observations of this type we will have, in the coming years, a more complete and precise idea of the various phases in the life of black holes and neutron stars, starting from their formation.