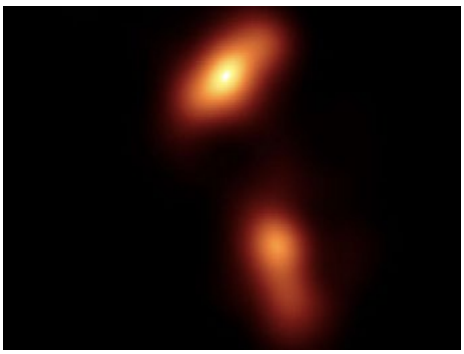

RESEARCH

AT THE HEART OF THE QUASAR 3C 279: FIRST IMAGE OF THE RELATIVISTIC JET OF A BLACK HOLE

The Event Horizon Telescope (EHT) collaboration, which made the famous first image of a black hole, has gone to the heart of the quasar 3C 279, capturing a relativistic jet for the first time. The jet probably originated from nearby a supermassive black hole. The results have been published on the 7 April issue of Astronomy and Astrophysics. The technique that the EHT used, called very-long-baseline interferometry (VLBI), has facilitated the study of the jet's morphology close to its base, where it is thought that a highly variable gamma-ray emission originates from. 3C 279 is a galaxy classified as quasar because, at its centre, an extremely luminous and variable point shines. The black hole at its centre, which has a mass around one billion times that of the Sun, "swallows" the stars and gas that approach it, then it expels a part of them, almost at the speed of light, in two plasma jets. EHT has collected the details of this process with a resolution much higher than one light year, showing the jet and the accretion disc while they are at work. The jet has an unexpectedly contorted shape at its base and perpendicular structures are observed at the jet, which could be the accretion disc from the poles of which the jets are expelled. Comparing images over successive days, these structures change. Perhaps, then, what is observed is the rotation of the disc and of the matter falling into it: another process that had never before been observed, except in numerical simulations. The EHT collaboration continues, thus, to extract fundamental information from the exceptional data collection of the global observation campaign conducted in April 2017. ■