The observational campaign around the 2025 periastron of eta Carinae Francisco Jablonski (INPE/MCTI), Augusto Damineli (IAG/USP), Felipe Navarete (LNA/MCTI), Eder Martioli (LNA/MCTI) and Rodrigo Capobiango (IAG/USP)

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Abstract

eta Carinae is the most massive binary system known in the Galaxy, with a total mass of ~160 M☉. Its highly eccentric orbit (e > 0.9) brings the hot secondary star through the extended outer layers of the extremely massive primary (>100 M☉) during periastron passage, triggering a diverse array of physical phenomena. This multi-messenger source is detectable across a huge range in the electromagnetic spectrum, from radio to gamma-rays. We present initial results from a multi-instrument observational campaign around the 2025 periastron of eta Carinae led by Dr. Augusto Damineli (IAG/USP), utilizing facilities at the Gemini, SOAR, and OPD/LNA as well as observatories in New Zealand and South Africa.