

MARCOT: Advancing Modular Telescope Arrays and Photonic Instrumentation at Calar Alto Observatory

Wednesday 26 November 2025 15:00 (15 minutes)

The Calar Alto Observatory (CAHA) in collaboration with IAA-CSIC have initiated the MARCOT project (Multi Array of Combined Telescopes) as a strategic step towards the next generation of large-size optical facilities. MARCOT aims to explore modular architectures for combined telescopes, providing enhanced flexibility, scalability, and cost-efficiency for future astronomical instrumentation.

In this presentation, we will outline the current status of the project and recent progress achieved under the Spanish “Planes Complementarios” funding scheme. Two major infrastructure upgrades have been completed: (1) the acquisition of a dedicated machine for the in-house fabrication of photonic lanterns, a key technology for efficient light coupling and future interferometric developments; and (2) a substantial improvement of CAHA’s scientific data archive, expanding its capacity, interoperability, and accessibility.

These developments represent foundational steps toward MARCOT’s long-term objective: establishing Calar Alto as a testbed for innovative optical designs and photonic technologies in astronomy. The talk will also discuss the technical roadmap and collaborative framework that are shaping the project’s next phase.

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