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"The European Solar Telescope: the most complete and advanced telescope for high-resolution solar physics"

With first light expected at the end of the present decade, the European Solar Telescope (EST) represents the most important technological joint effort made by the European ground-based Solar Physics community. EST will improve considerably the present observational capabilities thanks to its 4-metre diameter. Its optical design is especially designed to study magnetic phenomena taking place in the solar atmosphere, optimising two crucial aspects. On the one hand, its polarimetrically-compensated design is conceived to cancel out the instrumental polarisation induced by the individual elements of the telescope optical train. This property is crucial to make feasible the detection of very small, spatial and temporal, fluctuations of the magnetic field. Secondly, its design includes a powerful multi-conjugate adaptive optics system (MCAO) to optimally correct the wave-front distortions introduced by the Earth's atmosphere. With its MCAO system, EST is intended to measure the Sun at diffraction limit, with a spatial resolution of 20-30 km and a cadence of few seconds. The design is complemented with the most advanced suite of instruments that will operate simultaneously, to extract the maximum information about the dynamics, thermodynamics and magnetism of the solar plasma at different layers. In this talk, the status of the project will be presented, putting emphasis on the most recent technical developments, on the instrumentation and scientific goals that will be addressable with this facility and the most recent and upcoming milestones.

IAA Severo Ochoa Meeting: Addressing Key Astrophysical Questions from Granada

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