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The Atacama Large Aperture Submillimetre Telescope (AtLAST) and its future operations

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Abstract

The Atacama Large Aperture Submillimetre Telescope (AtLAST) is a mature concept for the next generation 50-meter class single-dish astronomical observatory operating at sub-millimetre wavelengths, powered by renewable energy and run as a facility telescope by an international partnership. AtLAST will open a new discovery space in numerous fields of Astrophysics and Cosmology, by enabling a major leap in sensitivity and mapping speed for sub-mm single dish astronomical observations. Among the science goals driving the design are to perform the deepest, highest resolution and most complete (imaging and spectroscopic) surveys both in our own Galaxy and of the extragalactic sky, as well as to detect and resolve the thermal and kinetic SZ effect from the filaments connecting large scale structures between galaxy clusters. The design studies funded through the EU Horizon program are now concluding and have produced multiple deliverables like the telescope design, site selection, operations and governance plans as well as the development of the science cases, in a constructive iteration with the study of the renewable energy system for AtLAST. We present here a brief summary of the project status, making stronger emphasis on the developments of the operations plan, where Spain plays a leading role. The work continues along 2025-2028 thanks to the recently awarded AtLAST2 EU project, with UCM and IAC contributing as full consortium members.

My poster in zenodo.org can be found here