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Space clock and fundamental tests. the ACES experiment

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Atomic Clock Ensemble in Space (ACES) is developing high performance clocks and links to test Einstein's theory of general relativity. From the International Space Station, the ACES payload will distribute a clock signal with fractional frequency instability and inaccuracy of $1E-16$ establishing a global network to compare clocks in space and on the ground. ACES will provide an accurate measurement of the Einstein's gravitational redshift, it will search for time variations of fundamental constant and perform Standard Model Extension tests.

The two on-board clocks, PHARAO and SHM, have been tested and integrated on the ACES payload. The microwave (MWL) and optical (ELT) link are currently under test. Once installed on ACES, performance and environmental tests on the complete system will follow to release the final acceptance for flight of the payload. Recent test results will be presented together with the major milestones that will lead us to the ACES launch.

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Session Classification: Fundamental Tests and Equivalence Principle

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