

Last Shuttle ride to ISS for ESA astronaut with 'dark matter' hunter

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ESA astronaut Roberto Vittori, STS-134 mission specialist, dons a training version of his shuttle launch and entry suit in preparation for a training session in the Space Vehicle Mock-up Facility at NASA's Johnson Space Center. Credits: NASA

(PhysOrg.com) -- ESA astronaut Roberto Vittori and the five other astronauts of the STS-134 mission will be launched to the International Space Station on Space Shuttle Endeavour on 29 April to deliver a pioneering scientific experiment.

This penultimate flight of NASA's spaceplane will deliver an instrument designed to track elusive antimatter and 'dark matter' in the Universe.

Liftoff on the 14-day STS-134 mission is scheduled for 19:47 GMT (21:47 CEST), with the docking to the [International Space Station](#) (ISS)

due two days later, on 1 May.

The last European to fly on a Shuttle, Roberto Vittori will be the first ESA astronaut to make a third visit to the ISS. It will also be his first flight on the Shuttle. On his two previous missions, in 2002 and 2005, he travelled on a Russian Soyuz spacecraft.

Arriving at the ISS, he will meet another Italian ESA astronaut, Paolo Nespoli, who has been aboard since 17 December.

On her last flight before retirement, Endeavour will carry a highly sophisticated European fundamental physics experiment. Mounted on the Station's main truss, the AMS-02 alpha magnetic spectrometer will probe the little-explored realm of high-energy cosmic rays to look for signs of antimatter and the mysterious dark matter.

Antimatter is believed to have been created on a par with normal matter but it seems to have disappeared from the Universe we know today. Dark matter is estimated to account for around 90% of our Universe's mass but it has not been detected directly so far. This dark matter element is reflected in the name 'DAMA' of Roberto Vittori's mission.

The AMS-02 observations could be of paramount importance for understanding the origin, nature and evolution of the Universe.

STS-134 marks the end of ESA's participation in Space Shuttle missions, which started in November 1981 with the first flight of Europe's Spacelab pallet on the second launch of Columbia. Over three decades, ESA astronauts will have flown on 26 missions and, counting payloads, hardware and experiments, Europe will have been involved in 86 missions by the time of the Shuttle's final venture, STS-135, in June.

Beginning with the Spacelab agreement in 1973, this historical and close

partnership with [NASA](#) will live on through the ISS and future international human spaceflight ventures.

This last Shuttle flight of an ESA astronaut will not mean the end of ESA's presence on the Station, which will continue at least through 2020. Two ESA [astronauts](#) are training for future 6-month missions on the orbital outpost: André Kuipers will be launched in November this year and Luca Parmitano in December 2013, both in Soyuz spacecraft.

Provided by European Space Agency

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