



## STS-116/Discovery

### 20th ISS Flight Continues Construction

NASA will continue building the International Space Station during mission STS-116, designated assembly flight 12A.1. Space Shuttle Discovery will carry seven crew members on its liftoff from Launch Pad 39B at Kennedy Space Center in Florida, set for no earlier than Dec. 7. The mission is the 20th flight to the station, Discovery's 33rd flight, and the 117th shuttle flight.

Payloads aboard Discovery include the P5 short spacer truss segment, a SPACEHAB single module, debris panels for the Zvezda Service Module and several science experiments.

During the 11-day mission, Discovery will dock with the station and the crew will deliver and install the P5 truss segment between the station's existing P3/P4 and P6 truss segments during two of the three planned spacewalks. Installation of the P5 truss will allow the solar arrays on the P3/P4 and P6 truss segments to operate and rotate without interfering with each other. The P5 truss will act as a conduit that will transmit power and data from the P6 segment to the other segments on the station.

The crew also will completely rewire and activate the station's electrical and thermal control systems, and transfer debris panels from Discovery's payload bay to the station's Node 1 module. The debris panels will further protect the station from potential impacts of micrometeorites and orbital debris.

Racks of experiments, flight hardware, spacewalk equipment, critical spares, photographic equipment and supplies to support the mission will be transferred from the SPACEHAB module and Discovery's middeck as needed to the station.

Mission Specialist Sunita Williams will transfer to the station and join the Expedition 14 crew in progress to serve as a flight engineer. Expedition 13 crew member Thomas Reiter of the European Space Agency will transfer from the station to Discovery for return to Earth.

After Discovery undocks from the station, the STS-116 crew will deploy several science experiments.



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## The Crew

**Mark L. Polansky** will lead the crew as commander on his second space shuttle flight. He served as pilot in February 2001 on mission STS-98, which delivered the U.S. laboratory module Destiny to the station. Polansky was born in Paterson, N.J. He received a Bachelor of Science degree in aeronautical and astronautical engineering, and a Master of Science in aeronautics and astronautics, both from Purdue University in 1978. He served as chief of the return-to-flight and orbiter repair branches prior to being assigned to mission STS-116.

U.S. Navy Cmdr. **William A. Oefelein** will serve as pilot on his first space flight. Oefelein was born in Ft. Belvoir, Va., but considers Anchorage, Alaska to be his hometown. He earned a Bachelor of Science in electrical engineering from Oregon State University in 1988, and a Master of Science in aviation systems from the University of Tennessee Space Institute in 1998. His most recent assignment was in the Astronaut Office Advanced Vehicles Branch and CAPCOM Branch at Johnson Space Center in Houston. During the mission, Oefelein will assist in using the orbiter boom sensor system to inspect the space shuttle's thermal protection system and assist in preparations for three spacewalks.

Dr. **Nicholas J.M. Patrick** will serve as mission specialist 1 on his first space flight. Patrick was born in North Yorkshire in the United Kingdom, but considers London and Rye, N.Y., his hometowns. He earned a Bachelor of Arts and a master's degree in engineering from the University of Cambridge in England in 1986 and 1990, respectively, and a doctorate in mechanical engineering from the Massachusetts Institute of Technology in 1996. During mission STS-116, Patrick will operate the shuttle's robotic arm to transfer the P5 truss segment from the payload bay and hand it off to the space station robotic arm operators. He will also use the shuttle's robotic arm to inspect the space shuttle thermal protection system.

U.S. Navy Capt. **Robert L. Curbeam Jr.** will serve as mission specialist 2 on his third space flight. Curbeam's previous missions were STS-85 in August 1997 and STS-98 in February 2001, during which he performed three spacewalks to help attach the U.S. laboratory module Destiny to the station. During mission STS-116, Curbeam will perform three spacewalks to attach the P5 truss segment to the P3/P4 truss and to completely rewire and activate the

station's electrical and thermal control systems. Curbeam was born in Baltimore. He earned a Bachelor of Science in aerospace engineering from the U.S. Naval Academy in 1984, and a Master of Science in aeronautical engineering from the Naval Postgraduate School in 1990.

**Christer Fuglesang**, an astronaut with the European Space Agency, will serve as mission specialist 3 on his first space flight. He was born in Stockholm, Sweden. He received a Master of Science in engineering physics from the Royal Institute of Technology in Stockholm in 1981, and a doctorate in experimental particle physics from the University of Stockholm in 1987. During mission STS-116, Fuglesang will make a spacewalk to assist in attaching the P5 short spacer truss segment to the station's P3/P4 trusses, and will help to deploy three satellite experiments from Discovery's payload bay after undocking from the station.

**Joan E. Higginbotham** will serve as mission specialist 4 aboard Discovery on mission STS-116, her first space flight. Born in Chicago, Higginbotham began her space career at Kennedy Space Center in 1987 as an electrical engineer and was lead orbiter project engineer for Space Shuttle Columbia before being selected as an astronaut candidate by NASA in 1996. She received a Bachelor of Science in electrical engineering from Southern Illinois University at Carbondale in 1987, a master's in management from Florida Tech in 1992, and a master's in space systems from Florida Tech in 1996. During the mission, Higginbotham will operate the station robotic arm to grapple the P5 truss segment during installation to the P3/P4 truss.

U.S. Navy Cmdr. **Sunita L. Williams** will join Expedition 14 in progress and serve as a flight engineer after traveling to the station aboard Discovery on mission STS-116, her first space flight. Williams was born in Euclid, Ohio, but considers Needham, Mass., her hometown. She earned a Bachelor of Science in physical science from the U.S. Naval Academy in 1987 and a Master of Science in engineering management from Florida Tech in 1995. During mission STS-116, she will operate the station's robotic arm to grapple the P5 truss from the shuttle's robotic arm and help guide it into place for installation to the P3/P4 truss. Williams will also perform a spacewalk while attached to the shuttle's robotic arm to move some debris panels for the Zvezda Service Module from the integrated cargo carrier to a pressurized mating adapter on the station's Node 1 module.

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