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The Cassini mission to Saturn: 13 years of discovery

📅 03.04.2018 ⌚ 11:30 - 12:00 📍 Hall 1A 🗨️ Plenary

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The NASA/ESA Cassini-Huygens mission to Saturn and Titan was the largest interplanetary spacecraft to be sent to another planet, launched in 1997 and arriving at the Saturn system to begin its main mission in 2004. During its 13 years in orbit at Saturn, Cassini has made in-depth investigations of the planet, its ring system, the orbiting moons, and the magnetosphere. The mission has led to many discoveries giving us an unprecedented insight into the nature of the Saturn and its environment. Major results and mysteries from the mission so far span a range of topics such as: searching for the elusive planetary rotation rate, the discovery of geological activity on Enceladus and methane rich seas on Titan, the discovery of new ringlets and moons, details of moon(let)-ring interactions, and new details on the hexagonal cloud pattern at Saturn's northern pole.

The dramatic end-of-mission sequence took place on Sept 15th 2017 when Cassini entered Saturn's atmosphere. This followed the "Grand Finale" orbits where the spacecraft explored uncharted territory between the inner edge of the ring system and Saturn itself. During this final phase of the mission we have gathered new information relating to the gravity and magnetic fields of Saturn, close up images of the planet, and an estimate for the mass of the ring system.

This presentation will first review a selection of the amazing findings from the mission followed by a focus on recent magnetosphere-related work, from the axi-symmetric nature of the internally generated magnetic field, to the effects of Saturn's rapidly rotating magnetosphere and origins of Saturn's dynamic auroral emissions.