



Cambridge Society for the Application of Research

c/o Churchill College  
Storey's Way  
Cambridge  
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## **Landing on a Comet Professor Monica Grady CBE**

**Professor of Planetary Science, The Open University**

7.30pm, Monday 6<sup>th</sup> June, 2016

Wolfson Hall Lecture Theatre, Churchill College, Storey's Way, Cambridge

### **The Lecture:**

The International Rosetta Mission was launched on 2nd March 2004 on its 10year journey to rendezvous with comet Churyumov-Gerasimenko.

Rosetta finally reached its target comet in August 2014.

From an operations engineering point of view the challenges of this mission were enormous. Flying in the proximity of the nucleus required the development of an accurate model of the comet and the forces acting on the spacecraft that it generates. This had to be done while the spacecraft was already flying in this unknown environment, a highly risky and unconventional way of flying in space.

On 12th November 2014 it delivered a small lander, Philae, onto the surface of the comet. Philae survived the landing and operated for about 2.5 days on the surface, before running out of battery power, but significant science was captured during this period.

Rosetta had very little time from the moment of arrival in the proximity of the comet, in early August, to the moment of Philae's landing on 12th November, to observe the nucleus, identify potential landing sites, develop a landing strategy and select the final candidate.

The Rosetta orbiter mission continued and is still on-going, observing and measuring the comet nucleus during its journey around the Sun.

The mission will be terminated in September 2016, after more than two years of science operations, with a planned touch down of the spacecraft onto the surface of the comet.

The landing operations, at a distance of 511 million kilometers from Earth, had to be fully automated and programmed on the basis of predictions from several hours before the event.

This lecture will summarize the objectives of the mission, some of the challenges in its planning and execution, and the scientific information that it has provided.

Like many missions, this has brought some remarkable new perspectives regarding comets, and, indeed, their place in the evolution of the solar system.

**Please note:** This lecture will be preceded by a brief (5 minutes) presentation by Award Student Girish Nivarti, followed by a few minutes for questions.

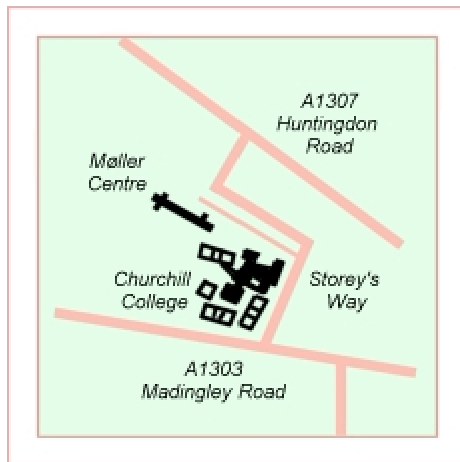
### **About the Speaker:**

**Professor Monica Grady** has been Professor of Planetary and Space Sciences at the Open University since April 2005.

She was Director of the Cosmochemistry Research Group prior to that, in the Department of Mineralogy at the Natural History Museum in London, where she headed the Meteorite Team, and remains a Scientific Associate of the Museum.

Monica's research activities centre round the analysis of meteorites, and what can be learnt from them about the origin and evolution of the solar system, including the potential for life to exist beyond Earth.

### **Practical Matters**



Those attending the CSAR lecture may park in the Senior Car Park on Churchill Road, which is off Storey's Way. More parking is available further along Churchill Road, and in the Möller Centre at the far end.

CSAR lectures are open to all; CSAR members are admitted free. Pupils and students may register for free membership at the lecture reception desk.

Non-members are asked to make a nominal contribution of £3.00.

Coffee and biscuits are available in the Wolfson Foyer from around 7pm. For further directions, see: [www.chu.cam.ac.uk/about/visitors/directions.php](http://www.chu.cam.ac.uk/about/visitors/directions.php)

Attendees are welcome to dine in the Hall at Churchill College (self-service, 5.45-7.15 pm), and to have snacks and refreshments in the College Buttery before and after events.

### **Microsoft Research**

CSAR is very grateful to Microsoft Research for sponsorship of CSAR lectures and student awards