

15th SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)  
Hitchhiking to the Moon (8)

Author: Dr. Susan Jason  
Surrey Satellite Technology Ltd (SSTL), United Kingdom, s.jason@sstl.co.uk

Mr. Kevin Hall  
SSTL, United Kingdom, k.w.hall@sstl.co.uk

Mr. Benjamin S Schwarz  
University of Southampton, United Kingdom, b.schwarz@soton.ac.uk

Mr. Adam White  
University of Southampton, United Kingdom, adamewhite1@gmail.com

Dr. Roger Walker  
European Space Agency (ESA), The Netherlands, Roger.Walker@esa.int

Mrs. Christiane Muller  
European Space Agency (ESA), The Netherlands, Christiane.Irene.Muller@esa.int

Mr. Doug Liddle  
Surrey Satellite Technology Ltd (SSTL), United Kingdom, d.liddle@sstl.co.uk

Prof. Martin Sweeting  
Surrey Space Centre, United Kingdom, m.sweeting@sstl.co.uk

## HITCHHIKING TO THE MOON: THE EUROPEAN STUDENT MOON ORBITER MISSION

**Abstract**

The European Student Moon Orbiter (ESMO) is planned to be the first European student mission to the Moon. Building upon the successful approach pioneered by ESA's Education Office, this mission aims to bring together European universities to design, manufacture and operate a lunar orbiter mission. Following a competitive tendering process Surrey Satellite Technology has been selected as the industrial prime contractor for this mission. SSTL also acts as an industrial mentor to the Network of Universities involved in the programme. The ESMO project aims to attract, train and qualify the next generation of engineers and scientists for implementing the challenging missions of the European Space Agency by providing valuable hands-on experience on a relevant and demanding project. There are over 20 universities from 10 countries involved in the programme bringing in a range of undergraduate and post graduate students supported by professional academic staff at each university.

The project preliminary definition phase started in October 2009, system requirements and definition reviews have been held and the team is working towards Preliminary Design Review in April 2011. ESMO mini-satellite is designed to be launched into Geostationary Transfer Orbit as a secondary payload in 2014. It requires on-board propulsion to transfer the spacecraft from its initial orbit into its operational lunar orbit where it will be used to perform scientific, technology demonstration and outreach activities.

With a piggy back launch to GTO, the use of flight spare hardware and donated kit from a range of project sponsors, ESMO is a true hitchhiker mission to the moon. This paper describes the ESMO mission profile, system design and baseline payloads. It outlines the programmatic approach to this mission and concludes with a summary of the ESMO project status, the technical challenges being faced due to the combination of donated technologies and hitchhiking requirements, and the opportunities offered via this inspirational mission.