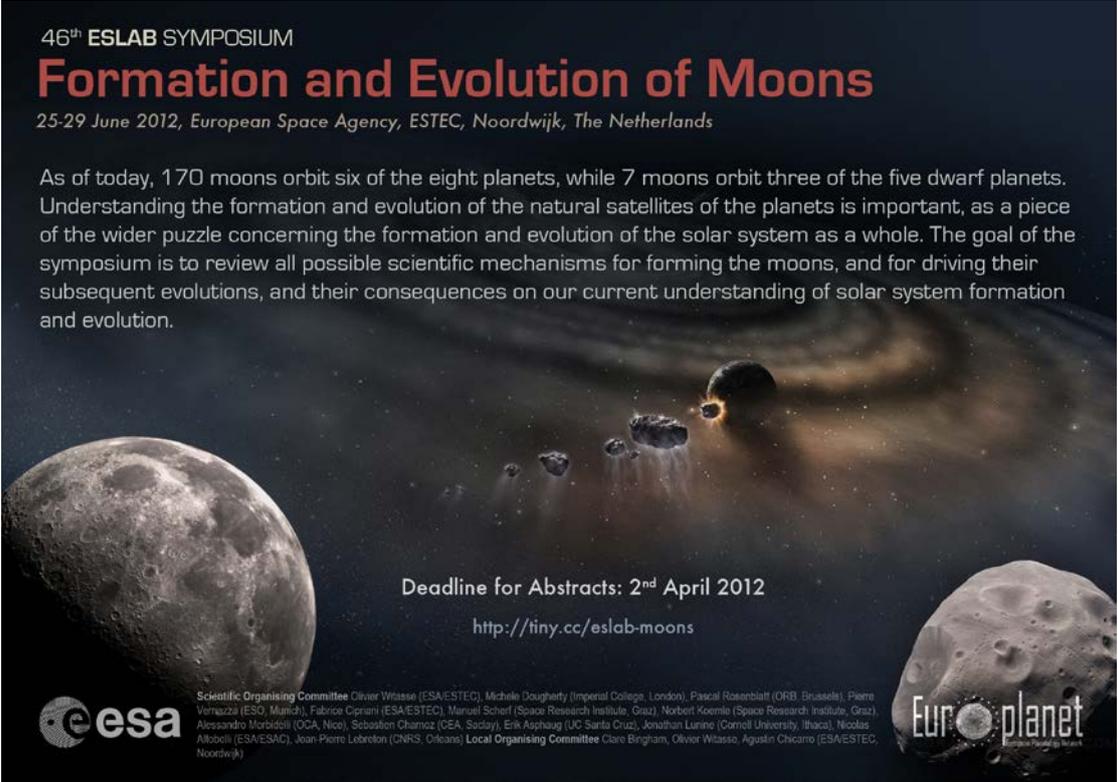


46th ESLAB Symposium

Formation and Evolution of Moons

Programme



46th ESLAB SYMPOSIUM
Formation and Evolution of Moons
25-29 June 2012, European Space Agency, ESTEC, Noordwijk, The Netherlands

As of today, 170 moons orbit six of the eight planets, while 7 moons orbit three of the five dwarf planets. Understanding the formation and evolution of the natural satellites of the planets is important, as a piece of the wider puzzle concerning the formation and evolution of the solar system as a whole. The goal of the symposium is to review all possible scientific mechanisms for forming the moons, and for driving their subsequent evolutions, and their consequences on our current understanding of solar system formation and evolution.

Deadline for Abstracts: 2nd April 2012
<http://tiny.cc/eslab-moons>

 Scientific Organising Committee Olivier Witasse (ESA/ESTEC), Michele Dougherty (Imperial College, London), Pascal Rosenblatt (ORB, Brussels), Pierre Vermezzo (ESO, Munich), Fabrice Ciprari (ESA/ESTEC), Manuel Scherf (Space Research Institute, Graz), Norbert Koemie (Space Research Institute, Graz), Alessandro Morabito (OCA, Nice), Sébastien Charnoz (CEA, Saclay), Erik Asphaug (UC Santa Cruz), Jonathan Lunine (Cornell University, Ithaca), Nicolas Altobelli (ESA/ESAC), Jean-Pierre Labatut (CNRS, Orleans) Local Organising Committee Clare Bingham, Olivier Witasse, Agustín Chicarro (ESA/ESTEC, Noordwijk) 

25- 28 June 2012

**European Space Agency
ESTEC**

Noordwijk, The Netherlands

Monday 25 June 2012

12:00-14:00: Registration, posters set up

14:00 – 14:20 Welcome and opening remarks (O. Witasse, L. Colangeli)

Session 1 – Formation mechanisms: Moons of giant planets

Moderator: *A. Coustenis*

14:20 Moon formation in the context of solar system formation

A. Coustenis

14:30 Origin and evolution of Galilean satellites *INVITED*

O. Grasset

15:00 On the Origins of the Regular Satellites of Gas Giant Planets *INVITED*

P. Estrada

15:30 *Final origin of the Saturn system*

E. Asphaug

15:50 Coffee break

Session 1 – Formation mechanisms: Moons of giant planets

Moderator: *D. Richardson*

16:20 The spreading of a tidal disk as a new mechanism for satellite formation: The case of Saturn's satellites and rings and implications for Saturn's dissipation.

S. Charnoz

16:40 A general model for satellite formation: the spreading of massive rings

A. Crida

17:00 The anelastic equilibrium tide in Solar System

F. Remus

17:20-18:00 Discussion

18:15 Welcome reception (sponsored by HE Space)

Tuesday 26 June 2012

**Session 1 – Formation mechanisms: Moons of Giant planets
(following)**

Moderator: *S. Charnoz*

09:00 The Formation Environment of the Galilean Moons
N. Turner

09:20 Dynamics of the small Saturn's moons in coupled resonances
M. El Moutamid

09:40 A study of small satellites capture in corotation resonance
E. Vieira Neto

10:00 Satellite Origin and Evolution via Three-body Encounters *INVITED*
C. Agnor

10:30 Coffee break

Session 2 – Mechanisms of formation: Moons of terrestrial planets

Moderator: *P. Estrada*

11:00 Recent advances in formation of moons of terrestrial planets
P. Estrada

11:10 On the Formation of the Martian Moons from a circum-Mars accretion disk
P. Rosenblatt

11:30 New results on the formation of the Moon: 100-years accretion timescales and implications for Earth-Moon isotopic similarities *INVITED*
J. Salmon

12:00 Possibility of Moon formation from debris escaped after impacts on the Earth
W. Svetsov

12:20 Earth's minimoons
M. Granvik

12:40 – 13:10 Discussion

13:15 -14:30 Lunch

Session 3 – Formation mechanisms: Pluto, KBOs & Asteroid systems

Moderator: *E. Asphaug*

14:30 Multi-bodies systems

E. Asphaug

14:40 Modeling the Collisional Origin of Satellites around Large KBOs *INVITED*

Z. Leinhardt

15:10 Formation of Pluto's small satellites *INVITED*

H. Levison

15:40 Formation scenarios of asteroid binaries and implications for the science return of the MarcoPolo-R mission *INVITED*

P. Michel

16:10 Numerical Simulations of Small Solar System Binary Formation

D. Richardson

16:30-17:00 Discussion

17:00-18:30 Coffee break and poster session

List of posters:

Why Mercury and Venus do not have a Moon?

J. Benkhoff

Statistical co-accretion model of formation and composition of prelunar swarm

G. Pechernikova

Impact craters: the evolutionary leaders

E. Martellato

Extra high underground temperature of oceanus procellarum revealed by Chang'e-1 lunar microwave radio meter data

W. Zhang

A possible reason why moon doesn't have a significant dipolar magnetic field

W. Zhang

Modeling and measuring the mass distribution inside Phobos to constrain its origin.

A. Rivoldini

A database of elongated craters on Mars to study the falling moonlet hypothesis

B. Buchenberger

Tidal displacements of Phobos' surface: A key information to reveal its origin

S. Le Maistre

Deimos and Phobos compared observations by OMEGA/MEX.

B. Gondet

How to improve the orbit model of Phobos using observations with ALMA?

E. Villard

Stratospheric Observatory for Infrared Astronomy Capabilities for Observations of Moons

M. Burgdorf

Interaction of Phobos' surface with the Solar Wind and the Martian Environment

F. Cipriani

SCF_LAB: an infrastructure to characterize laser altimetry of icy and rocky moons

S. Dell'Agnello

A high resolution orbitrap mass spectrometer for future moon missions

S. Cornelli

A New Numerical Model for multiple systems : ODIN

L. Beauvalet

Charged Nanograins in the Plume of Enceladus

G. Jones

Wednesday 27 June 2012

Session 4 – Moons atmosphere, environment and evolution

Moderator: *M. Dougherty*

09:00 Interaction between moons and their environment

M. Dougherty

09:10 The origin and evolution of Titan's atmosphere *INVITED*

A. Coustenis

09:40 Io: A (geo-)physicist's playground *INVITED*

N. Thomas

10:10 Satellite-Magnetosphere Interactions *INVITED*

G. Jones

10:40 Plasma interactions at Titan and icy moons: evolving ionospheres

A. Coates

11:00 Coffee break

11:30 Surface radiation environment of Saturn's icy moon Mimas

T. Nordheim

11:50 Magnetospheric Ion Implantation in the Icy Moons of Giant Planets

G. Strazulla

12:10 Ridge formation and de-spinning of Iapetus via an impact-generated satellite

K. Walsh

12:40 – 13:10 Discussion

13:15 -14:30 Lunch

Session 5 – Observational constraints

Moderator: *J.-P. Lebreton*

14:30 Observations for origin and evolution of moons

J.P. Lebreton

14:40 Depth of Enceladus craters: implications of surface properties on the early differentiation of icy moons

K. Degiorgio

15:00 Mimas and Enceladus: Formation and interior structure from astrometric reduction of Cassini images.

R. Tajeddine

15:20 Constraints on Moon evolution and planetary processes using SMART-1 data

B. Foing

15:40 Mars Express investigations of Phobos

O. Witasse

16:00 Coffee break

16:30 The origin of the Martian moons revisited

P. Rosenblatt

16:50 The age of Phobos *INVITED*

G. Neukum

17:20 Meteorite Analogs for Phobos and Deimos: Unraveling the origin of the Martian moons

P. Vernazza

17:40 – 18:00 Discussion

19:00 Dinner Restaurant “Het Zuiderbag”, Noordwijk

Thursday 28 June 2012

Session 6 – Future missions and Instrumentation

Moderator: *P. Rosenblatt*

09:00 Future exploration of moons
P. Rosenblatt

09:10 Future plans for Cassini
N. Altobelli

09:30 New Horizons *INVITED*
H. Levison

10:00 JUICE: an ESA L-mission to the Jupiter system *INVITED*
O. Grasset and M. Dougherty

11:00 Coffee break

11:30 Science and payload activities in support of the ESA Lunar Lander
J. Carpenter

11:50 The Martian Moon Sample Return mission study MMSR
D. Koschny

12:10 GETEMME: a mission to explore the Martian satellites
C. Le Poncin-Lafitte

12:30-13:00 Discussion

13:00-13:15 General conclusions

13:15 END OF THE MEETING