ORAL SESSIONS

BACK TO HIGHER LEVEL CONTENTS

Interplanetary Mission Design I

BepiColombo – A mission to Mercury
R. JEHN – ESA/ESOC, Darmstadt, Germany

ARTEMIS: the first mission to the lunar libration orbits
M. WOODARD – NASA/GSFC, Greenbelt, USA

V_∞ direction diagram and its application to swingby design
Y. KAWAKATSU – ISAS/JAXA, Kanagawa, Japan

Operational maneuver optimization for the ESA missions Herschel and Planck
R. BAUSKE – Terma GmbH / ESOC OPS-GFI, Darmstadt, Germany

Operational orbiting strategies about minor bodies
J. L. CANO – DEIMOS Space, Tres Cantos, Spain

Trajectory and system design of an electrically propelled orbiter for a Mars sample return mission
U. DERZ – RWTH Aachen University, Germany

Formation Flying I

Autonomous formation keeping and reconfiguration for remote sensing spacecraft
S. D'AMICO – DLR, Wessling, Germany

RF based navigation for PRISMA and other formation flying missions in Earth orbit
M. DELPECH – CNES, Toulouse, France

Prisma relative orbit determination using GPS measurements
N. DELONG – CNES, Toulouse, France

Dynamics and passive control for formation keeping between ShenZhou spaceship and its microsatellite
Y. LIU – Chinese Academy of Sciences, Beijing, China

Operations I

ESOC flight dynamics LEOP, commissioning and routine operations preparation for the GOCE mission
S. PESSINA – Terma GmbH at ESA/ESOC, Darmstadt, Germany

ATV Jules Verne mission maneuver plan
P. LABOURDETTE – CNES, Toulouse, France

BACK TO HIGHER LEVEL CONTENTS

Achieving the ERS-2 – ENVISAT inter-satellite interferometry tandem constellation
M.A. MARTIN SERRANO – VCS-SciSys, Darmstadt, Germany

Flight results of selenological and engineering explorer "KAGUYA" on lunar orbit
S. MATSUMOTO – JAXA, Ibaraki, Japan

Orbit Determination I

Rosetta navigation for the fly-by of asteroid 2867 Steins
F. BUDNIK – ESA/ESOC, Darmstadt, Germany

The endeavour to ascertain a successful navigation for Rosetta's fly-by at asteroid Steins
D. CANO MANANES – GMV, Tres Cantos, Spain

Innovations in delta differential one-way range: from Viking to Mars science laboratory
J.S. BORDER – JPL, Pasadena, USA

Mars approach navigation using the VLBA
T. MARTIN-MUR – JPL, Pasadena, USA

Mars Express and Venus Express range residuals for improving planetary ephemeredes
T. MORLEY – ESA/ESOC, Darmstadt, Germany

The non-gravitational accelerations of the Cassini spacecraft
L. IESS – University of Rome "La Sapienza", Roma, Italy

Mission Design I

THEMIS: implementation of a challenging mission design
S. FREY – University of California, Berkeley, USA

Formation keeping and changing strategy for SCOPE formation flight mission
Y. TSUDA – JAXA, Kamagawa, Japan

Galileo constellation: evaluation of station keeping strategies
D. NAVARRO-REYES – ESA-ESTEC, Noordwijk, The Netherlands

Flight dynamics challenges of the German on-orbit servicing mission DEOS
T. RUPP – DLR/GSOC, Wessling, Germany

Selection and optimisation of a constellation of satellites for continuous zonal coverage
G. AZEMA – THALES Solution de Sécurité et Services, Toulouse, France

An approach for predicting the effects of solar activity on the evolution of ground track drift of phased satellites
R. GALSKI – INPE, Sao José Dos Campos, Brazil

BACK TO HIGHER LEVEL CONTENTS

Collision Risk I

Analysis of the consequences in Low Earth Orbit of the collision between Cosmos 2251 and Iridium 33
C. PARDINI – ISTI/CNR, Pisa, Italy

Bayesian estimate of fragmentation epoch of CBERS-2
R. GALSKI – INPE, Sao José Dos Campos, Brazil

Computation of a collision probability based on a Gaussian mixture model of the TLE accuracy
R. GARMIER – Communication & Système, Toulouse, France

Orbit determination performance improvements for high area-to-mass ratio space object tracking using an adaptive Gaussian mixtures estimation algorithm
T. KELECY – BOEING, Colorado Springs, USA

AOCS I

Development of first solar power sail demonstrator – IKAROS
O. MORI – JAXA, Kanagawa, Japan

Use of Fuzzycones for Sun-only attitude determination: THEMIS becomes ARTEMIS
J. HASHMALL – a.i. solutions, Inc., Lanham, U.K.

Lunar reconnaissance orbiter (LRO) attitude maneuver planning
J.E. SEDLAK – a.i. solutions, Inc., Lanham, USA

Discussion of Hayabusa attitude control by gimbaled ion thruster
T. ENDO – JAXA, Kanagawa, Japan

Interplanetary Mission Design II

Automatic generation of Lissajous-type libration point trajectories and its manifolds for large energies
J.M. MONDELO – Universitat Autonoma de Barcelona, Spain

Analysis of interplanetary transfers between the Earth and Mars Halo orbits
M. NAKAMIYA – The Graduate University for Advanced Studies, Kanagawa, Japan

On the relationship between the Earth's weak stability boundary region and the low-energy transfers to the Moon
E. FANTINO – Universitat Politecnica de Catalunya, Barcelona, Spain

Transfer orbits in the Earth-Moon system and refinement to JPL ephemerides
E.M. ALESSI – Universitat de Barcelona, Spain

Preliminary design of low lunar orbits
M. LARA – Real Observatorio de la Armada, San Fernando, Spain

Trajectory analysis of solar sail spacecraft considering the large uncertainty of solar radiation pressure
T. YAMAGUCHI – The Graduate University for Advanced Studies, Kanagawa, Japan

BACK TO HIGHER LEVEL CONTENTS

Operations II

Four year experience of operational implementation of autonomous orbit control: lessons learned, feedback and perspectives
A. LAMY – CNES, Toulouse, France

Operational local time and eccentricity management for Metop-A
A. DAMIANO – Rhea Systems C/O EUMETSAT, Darmstadt, Germany

Out-of-plane manoeuvre campaigns for Metop-A: planning, modelling, calibration and reconstruction
F. SANCHO – GMV at EUMETSAT, Darmstadt, Germany

THEOS mission: transfer and first year of operations
A.H. GICQUEL – EADS ASTRIUM, Toulouse, France

Recovery of observation gaps on Planck's scan law: feasibility of small gap recovery under revised attitude control
M. MÜCK – EDS Operations Services GmbH/ESOC, Darmstadt, Germany

Applications of a high-precision emulation tool in support of the Herschel Mission at ESOC flights dynamics
L. TUCCI – Terma GmbH, Darmstadt, Germany

Optimization I

Automated generation of mission designs for NEOS
S. KEMBLE – ASTRIUM Ltd, Stevenage, U.K.

Designing optimal multi-gravity assist trajectories with free number of impulses
J. OLYMPIO – ESA, Noordwijk, The Netherlands

Automatic MGA trajectory planning with a modified ACO algorithm
M. CERIOTTI – University of Glasgow, U.K

Enhanced continuous Tabu search in a hybrid evolutionary algorithm for the optimization of interplanetary trajectories
L. CASALINO – Politecnico di Torino, Italy

Orbit Determination II

Precise orbit computation of India's first Lunar mission Chandrayaan-1 using accelerometer and tracking data during early phase
N.V. VIGHNESAM – ISRO Satellite Centre, Bangalore, India

Orbit determination of the Chandrayaan-I mission using Lunar Laser Ranging Instrument (LLRI) measurements
N.V. VIGHNESAM – ISRO Satellite Centre, Bangalore, India

BACK TO HIGHER LEVEL CONTENTS

SELENE (Kaguya) orbit determination results and lunar gravity field estimation by using 4-way Doppler measurements
H. IKEDA – JAXA, Tsukuba, Japan

Orbit determination of the Planck satellite
B. GODARD – VEGA Deutschland GmbH & Co, Darmstadt, Germany

Formation Flying II

Autonomous rendezvous guidance function of the SIMBOL-X formation flying mission on a high elliptical orbit: preliminary design and performances analysis
A. GAUDEL – CNES, Toulouse, France

Relative formation flying dynamics and control of a two-element virtual telescope on a HEO
L. PEREA – IEEC/ICE/CSIC, Barcelona, Spain

Autonomous and robust rendezvous guidance on elliptical orbit subject to J_2 perturbation
E. GOGIBUS – Astrium Space Transportation, Les Mureaux, France

Nonlinear and linear local cartesian relative motion state models for J_2 perturbed elliptical orbits
A. THERON – CNRS/LAAS, Toulouse, France

Model based visual relative motion estimation and control of a spacecraft utilizing computer graphics
F. TERUI – JAXA, Tokyo, Japan

Geostationary satellite mission analysis with FOCUSGAT
M.A. MOLINA – GMV AD, Tres Cantos, Spain

Collision Risk II

CNES operational feedbacks in collision avoidance for LEO satellites
G. BEAUMET – CNES, Toulouse, France

Management of 2008 Jason-1 / Topex close encounter
E. JURADO – CNES, Toulouse, France

Monitoring and mitigation of close proximities in Low Earth Orbit
S. AIDA – DLR, Wessling, Germany

Cataloguing Earth-orbiting objects with SSASIM
A. AGUEDA MATE – GMV, Tres Cantos, Spain

Performances of atmospheric density models during satellite re-entry prediction campaigns at sunspot minimum
C. PARDINI – ISTI/CNR, Pisa, Italy

Examination of the lifetime, evolution and re-entry features for the “molniya” type orbits
Y. KOYUKA – MCC Korolev, Moscow, Russia

BACK TO HIGHER LEVEL CONTENTS

Orbit Determination III

TerraSAR-X rapid and precise orbit determination
M. WERMUTH – DLR/GSOC, Wessling, Germany

Jason-2 near real time precise orbit determination based on Gras GSN
Y. ANDRES – Edymac at EUMETSAT, Darmstadt, Germany

Precise clock synchronization experiment using geostationary satellite, ETS-VIII
T. INOUE – JAXA, Ibaraki, Japan

Prelaunch analysis of the orbit determination for the Simbol-X mission
D. PASCAL – CNES, Toulouse, France

AOCS II

Extracting the attitude knowledge from the offsets in Earth observational imagery
R. MUMTAZ – Surrey Space Center, Guildford, U.K.

Optical measurements for the flyby navigation of Rosetta at asteroid steins
M. LAUER – ESA/ESOC, Darmstadt, Germany

Attitude determination and control of the AsteroidFinder mission
A. HEIDECKER – DLR, Bremen, Germany

Practical implementation of inverse optimal satellite attitude control techniques
N. M. HORRI – Surrey Space Center, Guildford, U.K.

Attitude controller design for spinning solar sail using analytical first-order oscillation model and numerical multi-particle model
O. MORI – JAXA, Kanagawa, Japan

Optimization II

A new shaping approach for preliminary low-thrust trajectory design
D. NOVAK – University of Glasgow, U.K

The Stark model: an exact, closed-form approach to low-thrust trajectory optimization
G. LANTOINE – Georgia Institute of Technology, Atlanta, USA

Solving fuel-optimal orbital homing problem with continuous thrust using direct methods
C. LOUEMBET – CNRS/LAAS, Toulouse, France

Solving fuel-optimal impulsive rendezvous problem using primer vector theory and real algebraic geometry
M. KARA-ZAÏTRI – LAAS/CNRS, Toulouse, France

Automatic minimum principle formulation for low thrust optimal control in orbit transfers using complex numbers
T. DARGENT – CNES, Toulouse, France

BACK TO HIGHER LEVEL CONTENTS

Exploration

Lunar mission profiles for commercial space operations
M. WILKINSON – Rice University, Houston, USA

GNC solutions for NEXT-MOON lunar lander mission
S. MELLONI – GMV, Tres Cantos, Spain

The dynamic motion estimation of a lunar lander using optical navigation
Y. SHANG – Surrey Space Centre, Guildford, U.K.

POSTERS

Testing and validation of planetary vision based navigation systems with PANGU
O. DUBOIS-MATRA – ESA/ESTEC, Noordwijk, The Netherlands

Mission analysis for METOP-B&C
J.M. DE JUANA GAMO – EUMETSAT, Darmstadt, Germany

Cataloguing Earth-orbiting objects with SSASIM
A. AGUEDA MATE – GMV, Tres Cantos, Spain

Assessing and mitigating satellite collision risk with *closeap*
A. AGUEDA MATE – GMV, Tres Cantos, Spain

Building a community: an open-source approach for space flight dynamics
L. MAISONOBE – C-S, Toulouse, France

Geostationary satellite mission analysis with FOCUSGAT
I. VERA TRALLERO – GMV AD, Tres Cantos, Spain

Autonomous ground station mock-up for LEO satellite
D. HAUTESSERRES – CNES, Toulouse, France

Monitoring the ATV rendezvous and docking with ISS: a challenge in term of frame transformations dealing
G. PRAT – C-S, Toulouse, France

Galileo station keeping strategy
A. PEREZ CAMBRILES – GMV, Tres Cantos, Spain

BACK TO HIGHER LEVEL CONTENTS