

# Fourth European Conference on Space Debris

## Oral Programme

**MSO: Flury, W. and: Klinkrad, H.**

**Co-Sponsorship: ASI, BNSC, CNES, DLR, COSPAR, IAA**

Monday, 18 April 2005

Lecture Room: Lecture Room for Plenary Session (H-I - H-IV)

Chairperson: TREMAYNE-SMITH, R.; ALBY, F.

9:00 - 9:20

Welcome Addresses

9:20

Reports on debris activities

9:20 - 9:40

SPACE2005-A-00104

Johnson, N. L.

Orbital Debris Research in the U.S.

9:40 - 10:00

SPACE2005-A-00228

Kulik (TBC), S.

Debris Research Activities in Russia

10:00 - 10:20

SPACE2005-A-00229

Kibe (TBC), S.

Debris Research Activities in Japan

10:20 - 10:40

SPACE2005-A-00230

Klinkrad, H.

Debris Research Activities in Europe

10:40  
COFFEE BREAK

Chairperson: TREMAYNE-SMITH, F.; ALBY, F.

11:10  
Overview presentations

11:10 - 11:30  
SPACE2005-A-00004  
Donath, Th.; Schildknecht, T.; Brousse, P.; Laycock, J.; Michal, T.; Ameline, P.; Leushacke, L.  
Proposal for a European Space Surveillance System (invited)

11:30 - 11:50  
SPACE2005-A-00190  
Matney, M. J.  
Uncertainty in Orbital Debris Measurements and Models (invited)

11:50 - 12:10  
SPACE2005-A-00183  
Schäfer, F.; Zengyao, H.; Lambert, M.; Christiansen, E.; Kibe, S.; Stokes, H.; Angrilli, F.; Semenov, A.  
The Inter-Agency Space Debris Coordination Committee (IADC) Protection Manual

12:10 - 12:30  
SPACE2005-A-00087  
Chekalin, S.; Yakovlev, M.; Gusev, Yu.; Kulik, S.; Bulinin, Yu.  
Russian Activity In Space Debris Mitigation

12:30  
LUNCH BREAK

Lecture Room: Lecture Room H-I

Chairperson: MICHAL, T.; AFRICANO, J.

14:00  
(1) Ground-based measurements

14:00 - 14:20  
SPACE2005-A-00011  
MICHAL, T; EGLIZEAUD, JP; BOUCHARD, J  
GRAVES : The French space surveillance system

14:20 - 14:40  
SPACE2005-A-00096  
Leushacke, L.; Jehn, R.  
Radar observations of space debris (invited)

14:40 - 15:00  
SPACE2005-A-00039  
Markkanen, J.  
Towards routine, real-time space debris measurements with EISCAT

15:00 - 15:20  
SPACE2005-A-00180  
Taromaru, Y.; Hirose, C.; Mori, S.; Horii, M.; Yamamoto, Y.; Aoki, S.; Isobe, S.  
Observation of Space Debris by the Kamisaibara Radar System

15:20 - 15:40  
SPACE2005-A-00110  
Jehn, R.; Leushacke, L.  
Unknown Debris at 1400 km Altitude

15:40  
COFFEE BREAK

Chairperson: MICHAL, T.; AFRICANO, J.

16:00  
(1) Ground-based measurements (continued)

16:00 - 16:20  
SPACE2005-A-00119  
Molotov, I.; Konovalenko, A.; Tuccari, G.; Agapov, V.; Nechaeva, M.; Gorshenkov, Y.; Volvach, A.; Liu, X.; Romyantsev, V.; Sukhov, P.  
International radar space debris research

16:20 - 16:40  
SPACE2005-A-00089  
Ruiz, G; Leushacke, L; Rosebrock, J  
Algorithms for multi-beam receiver data analysis

16:40 - 17:00  
SPACE2005-A-00024  
Stansbery, E. G.; Foster, J. L.  
Completeness of Measurements of the Orbital Debris Environment (invited)

17:00 - 17:20  
SPACE2005-A-00125  
Rosebrock, J.; Oswald, M.  
PROOF upgrade for bi/multistatic radar observation

17:20 - 17:40  
SPACE2005-A-00189  
Veniaminov, S.; Zavalii, V.; Tretjakov, Yu.; Pyrin, V.  
Some Results of Testing the New Program for Searching Space Objects in Deep Space

18:00  
End of Session

18:30  
Reception

Lecture Room: Lecture Room H-IV

Chairperson: ROSSI, A.; MATNEY, M.

14:00  
(3) Debris & meteoroid environment modelling

14:00 - 14:20  
SPACE2005-A-00141  
Oswald, M.; Stabroth, S.; Wiedemann, C.; Wegener, P.; Rosebrock, J.; Martin, C.; Smith, D.; Klinkrad, H.;  
Vörsmann, P.  
The MASTER 2005 Model (invited)

14:20 - 14:40  
SPACE2005-A-00130  
Lewis, H.G.; Swinerd, G.G.; Ellis, C.S.; Martin, C.E.  
Response of the space debris environment to greenhouse cooling

14:40 - 15:00  
SPACE2005-A-00073  
Krisko, P.H.  
Historical collisions in LEO

15:00 - 15:20  
SPACE2005-A-00077  
Horstman, M.F.; Foster, J.L.; Stansbery, E.G.  
Simulation of Past Breakup Events and the Correlation with Actual Radar Detections

15:20 - 15:40

SPACE2005-A-00074

Wittel, F.; Kun, F.; Herrmann, H.J.; Kröplin, B.H.  
Fragmentation of Shell-like Systems

15:40 - 16:00

SPACE2005-A-00006

Smirnov, N.N.; Kiselev, A.B.; Nekhaeva, O.V.  
Fluid filled containments breakup in collision

16:00

COFFEE BREAK

Chairperson: ROSSI, A.; MATNEY, M.

16:20

(3) Debris & meteoroid environment modelling (continued)

16:20 - 16:40

SPACE2005-A-00026

Hall, D.; Africano, J.; Kelecy, T.; Kervin, P.  
AMOS Observatory Measurements Of The Properties Of Orbiting NaK Droplets (cancelled)

16:40 - 17:00

SPACE2005-A-00150

Wiedemann, C.; Erwig, S.; Oswald, M.; Stabroth, S.; Klinkrad, H.; Vörsmann, P.  
Optical Properties of NaK Droplets

17:00 - 17:20

SPACE2005-A-00113

McNamara, H.; Cooke, W.; Suggs, R.  
MEM: A physics-based directional meteoroid model

17:20 - 17:40

SPACE2005-A-00060

Dikarev, V.; Gruen, E.; Landgraf, M.; Jehn, R.  
A fix pack pack for the ESA meteoroid model

17:40 - 18:00

SPACE2005-A-00111

Cooke, W.; Moser, D.  
An evaluation of the accuracy of meteor shower forecasts

18:00 - 18:20

SPACE2005-A-00142

Singer, W.; Batista, P.P.; Fuller, B.; Latteck, R.

## Diurnal and annual variations of meteor rates at high, middle, and low latitudes

18:20  
End of Session

18:30  
Reception

Tuesday, 19 April 2005

Lecture Room: Lecture Room H-I

Chairperson: SCHILDKNECHT, T.; LEUSHACKE, L.

8:30  
(1) Ground-based measurements

8:30 - 8:50  
SPACE2005-A-00169  
Schildknecht, T.; Musci, R.; Flury, W.; Kuusela, J.; de Leon, J.; de Fatima Dominguez Palmero, L.  
Optical Observations of Space Debris in High-Altitude Orbits (invited)

8:50 - 9:10  
SPACE2005-A-00175  
Seitzer, P.; Jorgensen, K.; Parr-Thumm, T.; Matney, M.; Jarvis, K.; Stansbery, E.; Barker, E.  
A Survey for GEO Debris in High Inclination Orbits

9:10 - 9:30  
SPACE2005-A-00091  
Agapov, V.; Titenko, V.; Stepanyants, V.; Dick, J.; Herridge, P.; Schildknecht, T.; Ploner, M.  
Joint RAS/PIMS/AIUB GEO survey results

9:30 - 9:50  
SPACE2005-A-00031  
Rios Bergantiños, S.; Deguine, B.; Klotz, A.; Thiebaut, C.; Foliard, J.; Boër, M.  
Improvement of the TAROT System Used for Space Debris Optical Observations and Observation Campaign Results

9:50 - 10:10  
SPACE2005-A-00127  
Dick, J.; Burch, J.; Hallpike, L.  
Sensor fusion in space population monitoring

10:10  
COFFEE BREAK

Chairperson: SCHILDKNECHT, T.; LEUSHACKE, L.

10:30

(1) Ground-based measurements (continued)

10:30 - 10:50

SPACE2005-A-00185

Barker, E.S.; Jarvis, K.S.; Africano, J.L.; Jorgensen, K.; Parr-Thumm, T.L.; Matney, M.J.; Stansbery, E.G.  
The GEO Environment as Determined by the CDT between 1998 and 2002

10:50 - 11:10

SPACE2005-A-00081

Africano, J.; Kervin, P.K.; Hall, D.; Sydney, P.F.; Ross, J.; Payne, T.; Gregory, S.; Jorgensen, K.; Jarvis, K.;  
Parr-Thumm, T.; and Team  
Understanding Photometric Phase Angle Corrections

11:10 - 11:30

SPACE2005-A-00047

Yanagisawa, T.; Nakajima, A.; Kurosaki, H.  
Detection of small GEO debris using automatic detection algorithm

11:30 - 11:50

SPACE2005-A-00133

Agapov, V.; Biryukov, V.; Molotov, I.; Rumyantsev, V.; Sohilina, A.; Titenko, V.  
Faint GEO objects search and orbital analysis

11:50 - 12:10

SPACE2005-A-00053

Karavaev, Yu.; Kopyatkevich, R.; Mishina, M.; Mishin, G.; Sakva, N.; Yuryshva, O.; Papushev, P.  
Astrophotometrical observation of artificial satellites and study of the technical status of parental bodies of  
space debris at geostationary ring.

12:10

LUNCH BREAK

Chairperson: DROLSHAGEN, G.; LIOU, J.C.

14:00

(2) Space-based & in-situ measurements

14:00 - 14:20

SPACE2005-A-00027

Flohrer, T.; The SBO Team  
Space-Based Optical Observations of Space Debris

14:20 - 14:40

SPACE2005-A-00051

Srama, R.; Auer, S.; Gruen, E.; Rachev, M.; Srowig, A.  
Performance of an Advanced Dust Telescope

14:40 - 15:00

SPACE2005-A-00129

Schwanethal, J.P.; McBride, N.; Green, S.F.; McDonnell, J.A.M; Drolshagen, G.  
Analysis of impact data from the DEBIE (debris in-orbit evaluator) sensor in polar low earth orbit

15:00 - 15:20

SPACE2005-A-00045

Dominguez, G; Westphal, A.J.; Phillips, M.L.F; Jones, S.M.; Graham, G.A.; Kearsley, A.T.; Drolshagen, G.  
Passive Detector Technology for the Capture of Particles in Low Earth Orbit: Calorimetric Aerogel.

15:20 - 15:40

SPACE2005-A-00147

Kobusch, M.; Jaeger, F.; Bunte, K.D.; Fichna, T.  
Breadboard Model of a Calorimetric Debris Detector

15:40

COFFEE BREAK

Chairperson: DROLSHAGEN, G.; LIOU, J.C.

16:00

(2) Space-based & in-situ measurements (continued)

16:00 - 16:20

SPACE2005-A-00034

Liou, J.-C.; Christiansen, E. L.; Corsaro, R. D.; Giovane, F. J.; Tsou, P.; Stansbery, E. G.  
Modeling the Meteoroid Environment with Existing In Situ Measurements and with Potential Future Space Experiments

16:20 - 16:40

SPACE2005-A-00172

Bunte, K.D.; Drolshagen, G.  
Detection and Simulation of Debris Cloud Impacts

16:40 - 17:00

SPACE2005-A-00135

Moussi, A.; Drolshagen, G.; McDonnell, J.A.M; Mandeville, J.C; Kearsley, A.



Results of the HST solar arrays impact analysis (invited)

17:00 - 17:20

SPACE2005-A-00109

Kearsley, A.; Graham, G.; Burchell, M.; Cole, M.; Drolshagen, G.; Chater, R.; McPhail, D.  
Sampling the orbital debris population using a foil residue collector in a Standardised Container for Experiments (SCE)

17:20 - 17:40

SPACE2005-A-00177

Neish, M.J.; Kitazawa, Y.; Noguchi, T.; Inoue, T.; Imagawa, K.; Ochi, Y.  
Passive Measurement Of Dust Particles On The ISS Using MPAC: Experiment Summary, Particle Fluxes And Chemical Analysis

17:40 - 18:00

SPACE2005-A-00193

Spencer, G.; Schäfer, F.; Tanaka, M.; Putzar, R.; Janovsky, R.  
Design and Calibration of the Meteoroid/space Debris Detector (MDD)

18:00

End of Session

18:30

Conference Dinner

Lecture Room: Lecture Room H-IV

Chairperson: JENKIN, A.; FRITSCHE, B.

8:30

(7) Risk analysis

8:30 - 8:50

SPACE2005-A-00163

Klinkrad, H.; Alarcon, J.R.; Sanchez, N.  
Collision Avoidance for Operational ESA Satellites (invited)

8:50 - 9:10

SPACE2005-A-00097

Gusev, Yu.; Burtsev, Yu.; Ivanov, N.; Kolyuka, Yu.; Soloviev, V.; Zhukov, V.  
Russian side activity in the practical solving the problem of avoiding collisions of ISS with space debris objects

9:10 - 9:30

SPACE2005-A-00057

Stokes, P.H.; Swinerd, G.G.

Debris protection optimisation of a realistic unmanned spacecraft using SHIELD

9:30 - 9:50

SPACE2005-A-00086

Hyde, J.; Lear, D.; Prior, T.; Christiansen, E.L.

Overview Of Recent Enhancements To The Bumper-II Meteoroid & Orbital Debris Risk Assessment Tool  
(cancelled)

9:50 - 10:10

SPACE2005-A-00139

Zheng, S. G.; Han, Z. Y.; Yan, J; Fan, J. Y.; Qu, G. J.

Calibration and Application of Meteoroid/Debris Failure Probability Assessment Code

10:10

COFFEE BREAK

Chairperson: JENKIN, A.; FRITSCH, B.

10:30

(7) Risk analysis (continued)

10:30 - 10:50

SPACE2005-A-00046

Smith, R.; Bledsoe, K.; Dobarco-Otero, J.; Rochelle, W.; Johnson, N.; Pergosky, A.; Weiss, M.  
Reentry Survivability Analysis of the Hubble Space Telescope (HST)

10:50 - 11:10

SPACE2005-A-00041

Lips, T.; Wartemann, V.; Koppenwallner, G.; Klinkrad, H.; Alwes, D.; Dobarco-Otero, J.; Smith, R.N.;  
DeLaune, R.M.; Rochelle, W.C.; Johnson, N.L.

Comparison of ORSAT and SCARAB Reentry Survival Results

11:10 - 11:30

SPACE2005-A-00120

Ailor, W.; Hallman, W.; Steckel, G.; Weaver, M.

Analysis of reentered debris and implications for survivability modeling

11:30 - 11:50

SPACE2005-A-00042

Koppenwallner, G.; Fritsche, B.; Lips, T.; Martin, T.; Francillout, L.; De Pasquale, E.

Analysis of ATV Destructive Re-entry including Explosion Events

11:50 - 12:10

SPACE2005-A-00103

Johnson, N. L.  
A New Look at Nuclear Power Sources and Space Debris

12:10 - 12:30

SPACE2005-A-00093

Nazarenko, A.I.; Nikolaev, V.S.; Grinberg, E.I.; Gafarov, A.A.; Luk'yashchenko, V.I.; Yakovlev, M.V.;  
Mikhilov, M.A.; Loginov, .S.  
Spacecraft With Nuclear Power Sources And Space Debris Problems

12:30

LUNCH BREAK

Chairperson: LAMBERT, M.; SCHAEFER, F.

14:00

(6) Accelerators, HVI & shielding

14:00 - 14:20

SPACE2005-A-00018

Wells, B.

Cryogenic and Elevated Temperature Hypervelocity Impact Facility

14:20 - 14:40

SPACE2005-A-00078

Akahoshi, Y.; Qu, Y.; Koura, T.; Fukushige, S.; Tadaoka, M.; Kitagawa, J.

Measurement of delay time from propellant ignition to projectile launch in two-stage light gas gun using  
electrothermal-chemical gun technology

14:40 - 15:00

SPACE2005-A-00055

Bencheng, Huang; Jungang, Zhang

Studies of using laser to drive small hypervelocity space debris

15:00 - 15:20

SPACE2005-A-00138

Higahisde, M.; Tanaka, M.; Akahoshi, Y.; Tohyama, F.

Hypervelocity impact tests against metallic meshes

15:20 - 15:40

SPACE2005-A-00075

Sibaud, J.-M.; Prieur, C.; Puillet, C.

Hypervelocity impact on honeycomb target structures : Experimental part.

15:40

COFFEE BREAK

Chairperson: LAMBERT, M.; SCHAEFER, F.

16:00

(6) Accelerators, HVI & shielding (continued)

16:00 - 16:20

SPACE2005-A-00182

Schäfer, F.; Destefanis, R.; Ryan, S.; Riedel, W.; Lambert, M.

Hypervelocity impact testing of CFRP/Al Honeycomb Spacecraft Structures

16:20 - 16:40

SPACE2005-A-00126

Nagao, Y; Kibe, S; Daigo, K; Francesconi, A; Pavarin, D

Hyper Velocity Impact Studies Simulating Debris Collision on Composite Material

16:40 - 17:00

SPACE2005-A-00108

Michel, Y.; Moussi, A.; Chevalier, J-M.; Durin, C.; Espinosa, C.; Mandeville, J-C.

Damaging and ejection processes during hypervelocity impact on thin brittle target: comparison between numerical simulation using an SPH method and experimental data

17:00 - 17:20

SPACE2005-A-00021

Zhang, W.; Guang, G.SH.; Jia, B.; Pang, B.J.

Numerical simulation of debris clouds produced by projectile hypervelocity impact on double-layer bumper

17:20 - 17:40

SPACE2005-A-00022

Zhang, W.; Guan, G.SH.; Pang, B.J.; Ha, Y.

Experimental and numerical studies of laminated glass subject to hypervelocity impact

17:40 - 18:00

SPACE2005-A-00173

Pavarin, D.; Lambert, M.; SDI Team

Analysis of GOCE's disturbances induced by Hypervelocity Impact

18:00

End of Session

18:30

Conference Dinner

Lecture Room: Lecture Room K-112

Chairperson: CROWTHER, R.; YAKOVLEV, M.

8:30

(8) Standards, regulations & legal issues

8:30 - 8:50

SPACE2005-A-00084

Davey, J.

Development Of ISO Standards Addressing Mitigation Of Orbital Debris

8:50 - 9:10

SPACE2005-A-00159

Kensinger, K. A.; Duall, S. J.; Persaud, S.

The U.S. Federal Communications Commission's Regulations concerning Mitigation of Orbital Debris

9:10 - 9:30

SPACE2005-A-00023

Crowther, R; Tremayne-Smith, R; Martin, C

Implementing space debris mitigation within the United Kingdom's Outer Space Act

9:30 - 9:50

SPACE2005-A-00069

Trebaol, J.-Y.

French policy and practices for the registration of space objects

9:50 - 10:10

SPACE2005-A-00085

Kerrest, A.

Space Debris And Related Legal Issues (invited)

10:10 - 10:30

SPACE2005-A-00115

Perek, L.

Management issues concerning space debris

10:30

COFFEE BREAK

Chairperson: CROWTHER, R.; YAKOVLEV, M.

10:50 - 11:10

SPACE2005-A-00088

Yakovlev, M.

The "IADC Space Debris Mitigation Guidelines" (invited)

10:50

(9) Catalogues, services & tools

11:10 - 11:30

SPACE2005-A-00145

Musci, R.; Schildknecht, T.; Flohrer, T.; Beutler, G.  
Concept for a Catalogue of Space Debris in GEO

11:30 - 11:50

SPACE2005-A-00001

Sridharan, R.

An innovative method for cataloging space debris (cancelled)

11:50 - 12:10

SPACE2005-A-00167

Noelke, D.; Reimerdes, H.-G.

A Standardized Interface between Orbital Debris Environment Models and Damage Prediction Tools

12:10 - 12:30

SPACE2005-A-00015

Nazarenko, A.; Koverga, E.

Optimization of the interface between space debris environment models and damage prediction tools

12:30 - 12:50

SPACE2005-A-00165

Langwost, A.; Sdunnus, H.; Gunia, D.; Drolshagen, G.; Soerensen, J.; Hauptmann, S.  
Presentation of the PC Version of the ESABASE/Debris Impact Analysis Tool

12:50

LUNCH BREAK

Chairperson: ANSELMO, L.; KOLYUKA, Y.

14:00

(4) Determination & prediction of debris orbits

14:00 - 14:20

SPACE2005-A-00010

Anselmo, L.; Pardini, C.

Orbital evolution of geosynchronous objects with high area-to-mass ratios

14:20 - 14:40

SPACE2005-A-00033

Liou, J.-C.; Weaver, J. K.

Orbital Dynamics of High Area-to-Mass Ratio Debris and Their Distribution in the Geosynchronous Region

14:40 - 15:00

SPACE2005-A-00002

Gopinath, N.S.; Ganeshan, A.S.

Long Term Evolution of Objects in GSO-Disposal Orbit

15:00 - 15:20

SPACE2005-A-00095

Fremaux, C.; Delong, N.; Moury, M.

Eccentricity Management For Geostationary Satellites During End Of Life Operations

15:20 - 15:40

SPACE2005-A-00161

Chao, C. C.; Campell, W. S.

Long-term perigee variations of GEO disposal orbits -- a revisit

15:40 - 16:00

SPACE2005-A-00136

Jenkin, A.B.; Gick, R.A.

Dilution of Disposal Orbit Collision Risk for the Medium Earth Orbit Constellations

16:00

COFFEE BREAK

Chairperson: ANSELMO, L.; KOLYUKA, Y.

16:20

(4) Determination & prediction of debris orbits (continued)

16:20 - 16:40

SPACE2005-A-00098

Kolyuka, Yu.; Afanasieva, T.; Gridchina, T.

Precise long-term prediction of the space debris object motion

16:40 - 17:00

SPACE2005-A-00062

Whitlock, D.; Johnson, N.

Modeling and monitoring the decay of NASA satellites

17:00 - 17:20

SPACE2005-A-00036

Yurasov, V.S.; Nazarenko, A. I.; Alfriend, K. T.; Cefola, P. J.

## Reentry time prediction using atmospheric density corrections

17:20 - 17:40

SPACE2005-A-00184

Sharma, R.K.; Bandyopadhyay, P.

GSLV-D2/CS Lifetime Estimation By Genetic Algorithm with Response Surface Approximation

17:40 - 18:00

SPACE2005-A-00052

Alarcón-Rodríguez, J. R.; Cuesta-Cabanás, J.; Martínez-Fadrique, F. M.; Klinkrad, H.

Independent orbit determination for collision avoidance

18:00 - 18:20

SPACE2005-A-00128

Herridge, P.; Khusul, R.; Dick, J.

Confirming the accuracy of orbital elements and close-approach predictions in GEO

18:20

End of Session

18:30

Conference Dinner

Wednesday, 20 April 2005

Lecture Room: Lecture Room H-I

Chairperson: MARTIN, C.; BONNAL, CH.

8:30

(5) Space debris mitigation

8:30 - 8:50

SPACE2005-A-00154

Martin, C.; Brandmueller, C.; Bunte, K.; Cheese, J.; Fritsche, B.; Klinkrad, H.; Lips, T.; Sanchez, N.

A debris risk assessment tool supporting mitigation guidelines (invited)

8:50 - 9:10

SPACE2005-A-00009

Pardini, C.; Anselmo, L.

Assessing the vulnerability to debris impacts of electrodynamic tethers during typical de-orbiting missions (invited)

9:10 - 9:30

SPACE2005-A-00037



Peláez, J.; Sánchez-Arriaga, G.; Sanjurjo-Rivo, M.  
Orbital debris mitigation with self balanced electrodynamic tethers (cancelled)

9:30 - 9:50

SPACE2005-A-00038

Bonnal, Ch.; Pille, F.; Kervendal, E.; Sergent, A.  
Optimization of tethered deorbitation of spent upper-stages: the "Mailman" process

9:50

COFFEE BREAK

Chairperson: MARTIN, C.; BONNAL, CH.

10:10

(5) Space debris mitigation (continued)

10:10 - 10:30

SPACE2005-A-00029

Raballand, F.; Mignon, D.; Gonnaud, J.L.  
Eurostar 2000 Disposal on a Graveyard Orbit : Orbit Control Strategy and Operational Implementation

10:30 - 10:50

SPACE2005-A-00107

Jehn, R.; Agapov, V.; Hernández, C.  
End-of-Life Disposal of Geostationary Satellites

10:50 - 11:10

SPACE2005-A-00030

Jaganath, KS; Nagesh Rao, B; Shenoy, HP; Parameswaran, S; Patil, CG  
Insat-2DT satellite re-orbiting and decommissioning.

11:10 - 11:30

SPACE2005-A-00102

Raffier, B.  
Tank depletion of geostationary satellites

11:30 - 11:50

SPACE2005-A-00090

Bulynin, Y.  
Analysis of fulfilment the inter-agency document requirements " IADC Mitigation Guidelines"

11:50

LUNCH BREAK

Chairperson: N.N.

14:00 - 14:45

Concluding press conference (Moderator: J. Landeau-Constantin)

14:45

END OF CONFERENCE

Lecture Room: Lecture Room H-IV

Chairperson: CHRISTIANSEN, E.; KIBE, S.

8:30

(6) Accelerators, HVI & shielding (continued)

8:30 - 8:50

SPACE2005-A-00155

Thoma, K.; Wicklein, M.; Schneider, E.

New Protection Concepts for Meteoroid / Debris Shields (invited)

8:50 - 9:10

SPACE2005-A-00124

Destefanis, R.; Lambert, M.; Schaefer, F.; Drolshagen, G.; Francesconi, D.

Debris shielding development for the ATV Integrated Cargo Carrier

9:10 - 9:30

SPACE2005-A-00162

Putzar, R.; Schäfer, F.; Lambert, M.; Romberg, O.

Vulnerability of shielded fuel pipes and heat pipes to hypervelocity impacts

9:30 - 9:50

SPACE2005-A-00008

Meshcheryakov, S.A.; Bezrukov, L.; Kononenko, M.; Myagkov, N.; Petrunin, A.; Rebrikov, V.; Semenov, A.; Yakovlev, M.

Optimization of protection structures

9:50 - 10:10

SPACE2005-A-00044

Guan, G.S; Pang, B.J; Zhang, W; Ha, Y

Experimental investigation of bumper thickness effect on damage of Al-Whipple shield by hypervelocity impact

10:10 - 10:30

SPACE2005-A-00012

Vedernikov, Y.A.; Gizatullin, B.S.; Pustovoy, N.V.

The problem of protecting space ships and stations against orbital debris

10:30

COFFEE BREAK

Chairperson: CHRISTIANSEN, E.; KIBE, S.

10:50

(6) Accelerators, HVI & shielding (continued)

10:50 - 11:10

SPACE2005-A-00083

Shumikhin, T.; Kononenko, M.; Malkin, A.; Myagkov, N.; Semenov, A.; Bezrukov, L.  
On fragmentation of aluminum projectile on mesh bumpers

11:10 - 11:30

SPACE2005-A-00071

Schonberg, W.P.; Evans, H.J.; Williamsen, J.E.; Boyer, R.L.; Nakayama, G.S.  
Uncertainty Considerations For Ballistic Limit Equations

11:30 - 11:50

SPACE2005-A-00168

Reimerdes, H.-G.; Noelke, D.; Schaefer, F.

Modified Cour-Palais/Christiansen Damage Equations for Double-Wall Structures

11:50 - 12:10

SPACE2005-A-00064

Lukyanov, A. A.; Reveles, J. R.; Vignjevic, R.

Simulation of hypervelocity impact and spacecraft shielding performance

12:10 - 12:30

SPACE2005-A-00157

Bashurov, V.V.; Ioilev, A.G.; Konyaeva, O.V.

Influence of the hypervelocity disk projectile orientation on damage to target: numerical simulation

12:30 - 12:50

SPACE2005-A-00137

Jia, B.; Ma, ZH.T.; Zhang, W.; Pang, B.J.

A neutral network approach to determination of leading debris caused by hypervelocity impact on Whipple shield