

3rd US-China Space Surveillance Technical Interchange

Beijing Institute of Technology
Beijing, China

12-16 May 2013

YE Shuhua
China Co-Chair

P. Kenneth Seidelmann
U.S. Co-Chair

ZHANG Jingrui
China Technical Chair

Kyle T. Alfriend
U.S. Technical Chair

SUNDAY 12 MAY

American participants can have a choice to visit Summer Palace or Forbidden City.

MONDAY 13 MAY

Opening Remarks

8:40 Prof. YE Shuhua, China Co-Chair
Prof. Kenneth Seidelmann, U.S. Co-Chair

Session 1 *Probability of Collision* *Chair* **Liu Zhonggui**

S1.1 9:00 **Miss Distance - Generalized Variance Non-Central Chi
Distribution**
K. Chan

S1.2 9:30 **Explicit Expression of Collision Probability In Terms of RSW and
NTW Components Of Relative Position**
BAI X-Z., L. CHEN and TANG G-J.

S1.3 10:00 **Uncertainty in Probability of Collision Calculation**
D. Garber

10:30 *Coffee Break*

S1.4 11:00 **Bayesian Group Tracking Method For Space Debris**
HUANG J., HU W. D. and ZHANG L.F.

Session 2 *Orbit Uncertainty and Propagation* *Chair* **Ken Chan**

S2.1 11:30 **A Method to Improve the Precision of Space Debris Orbital
Elements**
LIU Zhonggui

S2.2 12:00 **Analytical Non-Linear Uncertainty Propagation: Theory And
Implementation**
K. Fujimoto, D.J. Scheeres and K.T. Alfriend

12:30 *Lunch*

S2.3 14:00 **Improving low-Earth orbit prediction precision with TLEs**
Liu wei, Wang Ronglan, Yan Ruidong, Gong Jiancun

S2.4 14:30 **Orbit Uncertainty Propagation of a Tumbling High Area-to-Mass-Ratio Space Object**
CHENG Y.

Session 3 ***Tracking Space Debris 1***
Chair **HU Weidong**

S3.1 15:00 **Multi-source Space Situational Information Fusion and Cooperation**
WANG Peng.

15:30 ***Coffee Break***

S3.2 16:00 **An Automated Telescope for Orbital Debris**
LU X.M.

S3.3 16:30 **GEO Cross-tag Resolution using Color Signatures**
T. Payne

17:00 ***Technical Discussion of Monday's Presentations***
Darren Garber and HU Weidong

Banquet
18:00

TUESDAY 14 MAY

Session 4 ***Space Situational Awareness Support***
Chair **D. Walsh**

S4.1 9:00 **Parallel Algorithm For Track Initiation For Optical Space Surveillance**
P. W. Schumacher, M. P. Wilkins and C.W.T. Roscoe

S4.2 9:30 **Maneuver Detection of Space Object For Space Surveillance**
HUANG J., HU W. D. and ZHANG L.F.

10:00 ***Coffee Break***

S4.3 10:30 **Autonomy Architecture for a Raven-Class Telescope with Space Situational Awareness Applications**
R. D. Coder and M. J. Holzinger

Session 5 ***Space Debris Tracking 2***
Chair **Gong Zizheng**

S5.1 11:00 **A Survey of Radars Capable of Providing Small Debris Measurements for Orbit Prediction**
D. Walsh

S5.2 11:30 **Study on Optical Cross section of Space Debris**
WANG J.F., LU X.M. and MAO Y.

S5.3 12:00 **Long Term Behavior of the Thermosphere Determined from Satellite Drag Measurements**
S. Knowles

12:30 ***Lunch***

S5.4 14:00 **Application of sCMOS in space debris measurement**
Ge L

WEDNESDAY 15 MAY

Session 7 ***Mathematical Applications***
Chair **Jiang xiaojun**

S7.1 9:00 **Robust Formation Design for High-Eccentricity Satellite Missions
Using a Stochastic Optimization Approach**
C. W. T. Roscoe, S. R. Vadali, and K. T. Alfriend

S7.2 9:30 **Introduction of a new ISO project: Standard Calculation of Orbit
Elements at Satellite-Launch Vehicle Separation**
LIU Jiarun.

10:00 ***Coffee Break***

S7.3 10:30 **Mean Solar Time, UT1, UTC, and Leap Seconds**
P.K. Seidelmann and J. H. Seago

11:00 ***Closing Comments & Discussion***
YE Shihua, ZHANG Jingrui, Ken Seidelmann and Terry Alfriend

12:00 ***Lunch***

14:00 ***Quadrilateralized Spherical Cube (QLSC)(about two-hour)***
Ken Chan

16:00 ***The National Meteorological Bureau***
American participants

18:30 ***LaoShe Tea-House***
American participants

THURSDAY 16 MAY

9:00 *Spacecraft Collision Probability (1)*
Ken Chan

12:30 ***Lunch***

13:30 *Spacecraft Collision Probability (2)*
Ken Chan

16:00 *Technical Discussion(one-hour)*

American participants who don't attend the Chan's lecture can have a choice to visit Great Wall and Ming Tombs or WangFuJing