

**American Astronautical Society
University at Buffalo, State University of New York**

**The Malcolm D. Shuster
ASTRONAUTICS SYMPOSIUM**

**SUNDAY, JUNE 12, 2005
*Holiday Inn Conference Ctr.***

- 2:50 – 3:15 **[05-476]** “Analysis of Trajectories to Neptune Using Gravity Assists,” C. R. Solórzano, A. A. Sukhanov and A. F. Prado
- 3:15 – 3:40 **[05-477]** “A Batch Algorithm for GPS Attitude Determination and Integer Ambiguity Resolution,” M. Psiaki
- 3:40 – 4:05 **[05-478]** “Optimal Attitude Estimation from GPS-Like Measurements,” L. Fraiture
- 4:05 – 4:30 BREAK
- 4:30 – 10:00 Excursion to Niagara Falls and Dinner

6:00 – 9:00

Registration and Reception

- 6:00 – 7:00 Cocktails
7:00 – 9:00 Dinner
6:00 – 9:00 Registration

**WEDNESDAY, JUNE 15, 2005
*Holiday Inn Conference Ctr.***

- 8:00 – 9:00 Continental Breakfast
- Session 8 Chair: John L. Crassidis**
9:00 – 9:25 **[05-479]** “The Brazilian Satellite Program---A Survey,”
I. M. Fonseca and P. M. Bainum
- 9:25 – 9:50 **[05-480]** “The QUEST for the Brazilian Space Research,”
H. K. Kuga, R.V. F. Lopes, V. Orlando, and M. C. Zanárdi
- 9:50 – 10:15 **[05-481]** “Nonlinearity Index of the Cayley Form,”
A. J. Sinclair, J. E. Hurtado and J. L. Junkins
- 10:15 – 10:25 BREAK
- 10:25 – 11:50 Roundtable Discussions with Dr. Shuster
- 11:50 – 12:00 Closing Ceremony
- 12:00 – 2:00 LUNCH

**MONDAY, JUNE 13, 2005
*Holiday Inn Conference Ctr.***

7:00 – 8:00

Continental Breakfast and Registration

Session 1
8:00 – 8:10

Chair: John L. Crassidis
Introductory Remarks

8:10 – 8:35

“Where I’ve Been and Where I Am Now,” M. D. Shuster

8:35 – 9:00

[05-451] “Sherman’s Theorem: Solutions to Multidimensional Nonlinear Real-Time Problems,” J. R. Wright

9:00 – 9:25

[05-452] “A Simple, Globally Convergent, Three Axis Attitude Observer Using Rate Data and Single Vector Observations,” R. Reynolds

9:25 – 9:50

[05-453] “Differential Games,” N. Fitz-Coy

9:50 – 10:10

BREAK

Session 2

Chair: Daniele Mortari

10:10 – 10:35

[05-454] “Satellite Electricity on Orbital Time Scales,”
P. J. Melvin

10:35 – 11:00 **[05-455]** “Reconfiguration of a Rolling Sphere: A Problem in Evolute-Involute Geometry,” T. Das and R. Mukherjee

11:00 – 11:25 **[05-456]** “Gyrostats in Free Motion as a Test Bench on Integrability and Chaos,” A. Elipe, M. Iñárrrea and V. Lanchares

11:25 – 11:50 **[05-457]** “On the Use of Chaos Indicators in Rigid-Body Motion,” R. Barrio and A. Elipe

11:50 – 12:15 **[05-458]** “Attitude Dynamics of Satellites Orbiting Asteroids,” A. K. Misra

12:15 – 2:00 LUNCH

Session 3
2:00 – 2:25 **Chair: John L. Junkins**
[05-459] “Single Point Optimal Attitude Determination Using Modified Rodrigues Parameters,” C. Bruccoleri, D.-J. Lee and D. Mortari

2:25 – 2:50 **[05-460]** “Attitude Filtering on SO(3),” F. L. Markley

2:50 – 3:15 **[05-461]** “Estimation Using Quaternion Probability Densities on the Unit Hypersphere,” M. Psiaki

3:15 – 3:35 BREAK

3:35 – 4:00 **[05-462]** “Attitude Estimation for Large Field-of-View Sensors,” Y. Cheng, J. L. Crassidis and F. L. Markley

4:00 – 4:25 **[05-463]** “Rapid Planet Detection Algorithms for the Terrestrial Planet Finder,” N. J. Kasdin and I. Braems

4:25 – 4:50 **[05-464]** “Adaptive Estimation of Spacecraft Attitude from Vector Observations Using a Quaternion Particle Filter,” Y. Oshman and A. Carmi

4:50 – 5:10 BREAK

Session 4
5:10 – 6:10 **Keynote Address**
Dr. Malcolm D. Shuster
[05-465] “Beyond Estimation”

6:10 – 6:30 BREAK

6:30 – 7:15 Cocktails, Holiday Inn

7:15 – 9:00 DINNER, Holiday Inn

TUESDAY, JUNE 14, 2005

Holiday Inn Conference Ctr.

7:30 – 8:30 Continental Breakfast

Session 5
8:30 – 8:55 **Chair: F. Landis Markley**
[05-466] “Cascaded and Decoupled RIMU Calibration Filters,” M. E. Pittelkau

8:55 – 9:20 **[05-467]** “Three-Axis Attitude Propagation from Digital Images,” R. V. F. Lopes

9:20 – 9:45 **[05-468]** “Attitude and Orbit Error in n -Dimensional Spaces,” D. Mortari, S. R. Scuro and C. Bruccoleri

9:45 – 10:10 **[05-469]** “Closed-Form Velocity Solutions in Lost-in-Space Attitude and Position Determination,” S. Tanygin

10:10 – 10:35 BREAK

Session 6
10:35 – 11:00 **Chair: Yaakov Oshman**
[05-470] “Optimal Attitude-Constrained Low-Thrust Transfer Between Inclined Circular Orbits,” J. A. Kechichian

11:00 – 11:25 **[05-471]** “Fundamental Limits on Spacecraft Orbit Uncertainty and Distribution Propagation,” D. J. Scheeres, F.-Y. Hsiao, R. S. Park, and B. Villac

11:25 – 11:50 **[05-472]** “Necessary Conditions for Circularly-Restricted Static Coulomb Formations,” H. Schaub, C. D. Hall and J. Berryman

11:50 – 12:15 **[05-473]** “Nuclear Electric Sundiving,” D. Sonnabend

12:15 – 2:00 LUNCH

Session 7
2:00 – 2:25 **Chair: Hanspeter Schaub**
[05-474] “Asynchronous Optimal Mixed P2P Satellite Refueling Strategies,” A. Dutta and P. Tsiotras

2:25 – 2:50 **[05-475]** “Effects of the Eccentricity on the Primaries in the Gravitational Capture Phenomenon,” E. V. Neto and A. F. Prado