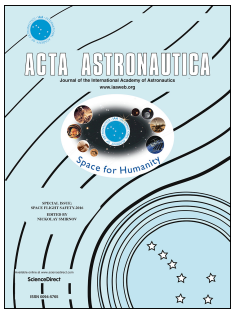
Accepted Manuscript



The Strata-1 experiment on small body regolith segregation

Marc Fries, Paul Abell, Julie Brisset, Daniel Britt, Joshua Colwell, Adrienne Dove, Dan Durda, Lee Graham, Christine Hartzell, Kenneth Hrovat, Kristen John, Dakotah Karrer, Matthew Leonard, Stanley Love, Joseph Morgan, Jayme Poppin, Vincent Rodriguez, Paul Sánchez-Lana, Dan Scheeres, Akbar Whizin

PII: S0094-5765(17)30334-X

DOI: 10.1016/j.actaastro.2017.10.025

Reference: AA 6515

To appear in: *Acta Astronautica*

Received Date: 1 March 2017

Revised Date: 8 August 2017

Accepted Date: 18 October 2017

Please cite this article as: M. Fries, P. Abell, J. Brisset, D. Britt, J. Colwell, A. Dove, D. Durda, L. Graham, C. Hartzell, K. Hrovat, K. John, D. Karrer, M. Leonard, S. Love, J. Morgan, J. Poppin, V. Rodriguez, P. Sánchez-Lana, D. Scheeres, A. Whizin, The Strata-1 experiment on small body regolith segregation, *Acta Astronautica* (2017), doi: 10.1016/j.actaastro.2017.10.025.

The Strata-1 Experiment on Small Body Regolith Segregation

Marc Fries[1] – Corresponding Author (marc.d.fries@nasa.gov)
Paul Abell[1]
Julie Brisset[2]
Daniel Britt[2]
Joshua Colwell[2]
Adrienne Dove[2]
Dan Durda[3]
Lee Graham[1]
Christine Hartzell[4]
Kenneth Hrovat[5]
Kristen John[1]
Dakotah Karrer[6]
Matthew Leonard[7]
Stanley Love[1]
Joseph Morgan[6]
Jayme Poppin[8]
Vincent Rodriguez[9]
Paul Sánchez-Lana[10]
Dan Scheeres[10]
Akbar Whizin[2]

[1]NASA Johnson Space Center,
[2]University of Central Florida,
[3]Southwest Research Institute,
[4]University of Maryland,
[5]ZIN Technologies, Inc.
[6]Texas A&M University, currently at Texas Instruments
[7]T STAR, Bryan, TX,
[8]The Boeing Company, Huntsville AL,
[9]Texas Instruments
[10]University of Colorado Boulder.
Contact: marc.d.fries@nasa.gov

Abstract

The Strata-1 experiment studies the mixing and segregation dynamics of regolith on small bodies by exposing a suite of regolith simulants to the microgravity environment aboard the International Space Station (ISS) for one year. This will improve our understanding of regolith dynamics and properties on small asteroids, and may assist in interpreting analyses of samples from missions to small bodies such as OSIRIS-REx, Hayabusa-1 and -2, and future missions to small bodies. The Strata-1 experiment consists of four evacuated tubes partially filled with regolith simulants. The simulants are chosen to represent models of regolith covering a range of complexity and tailored to inform and improve computational studies. The four tubes are regularly imaged while moving in