

Bibliography

- [1] 50th Anniversary of First Transit to Orbit. Online Resource. <http://forum.nasaspaceflight.com/index.php?topic=21227.0>, Accessed Jan 2012.
- [2] NOAA National Geophysical Data Center: Geomagnetic kp and ap Indices. Online Resource. ftp://ftp.ngdc.noaa.gov/STP/GEOMAGNETIC_DATA/INDICES/KP_AP/2012, Accessed Dec 2013.
- [3] E. A. Alshina, E. M. Zaks, and N. N. Kalitkin. Optimal first- to sixth-order accurate Runge-Kutta schemes. Computational Mathematics and Mathematical Physics, 48(3):395–405, February 2011.
- [4] M L Battagliere, F Santoni, F Piergentili, M Ovchinnikov, and F Graziani. Passive magnetic attitude stabilization system of the EduSAT microsatellite. Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering, 224(10):1097–1106, January 2010.
- [5] Maria L. Battagliere, Fabio Santoni, Michael Yu. Ovchinnikov, and Filippo Graziani. Hysteresis Rods In the Passive Magnetic Stabilization System for University Micro and Nanosatellites. In 59th International Astronautical Congress, pages 5203–5212, 2008.
- [6] Ciaran Beggan and Kathy Whaler. Forecasting secular variation using core flows. Earth Planets Space, 62(10):821–828, December 2010.
- [7] Tom Bleier, Paul Clarke, Jamie Cutler, Louis DeMartini, Clark Dunson, Scott Flagg, Allen Lorenz, and Eric Tapio. QuakeSat Lessons Learned : Notes from the Development of a Triple CubeSat. Technical report, 2004.
- [8] Jeff P. Anderson & Richard J. Blotzer. Permeability and Hysteresis Measurement. In The Measurement, Instrumentation and Sensors Handbook on CD-ROM, chapter Permeabili. CRC Press LLC, 1999.
- [9] Carl O Bostrom and Donald J Williams. The Space Environment. John Hopins APL Technical Digest, 19(1):43–52, 1998.
- [10] Richard M. Bozorth. Ferromagnetism. Wiley-IEEE Press, 1 edition, 1993.
- [11] Roland Burton, Stephen Rock, John Springmann, and James Culter. Online Attitude Determination of a Passively Magnetically Stabilized Spacecraft. In Proceedings of the 23rd AAS/AIAA Space Flight Mechanics Meeting, pages 1–18, 2013.

- [12] Roland Burton, Joseph Starek, and Stephen Rock. A New Method for Simulating the Attitude Dynamics of Passively Magnetically Stabilized Spacecraft. In Proceedings of the 22nd AAS/AIAA Space Flight Mechanics Meeting, pages 1–14, 2012.
- [13] California Polytechnic State University. CubeSat Design Specification. Rev. 12.
- [14] Nalin A. Chaturvedi, Taeyoung Lee, Melvin Leok, and N. Harris McClamroch. Nonlinear Dynamics of the 3D Pendulum. Journal of Nonlinear Science, 21(1):3–32, September 2010.
- [15] Y Chen. The damped angular motion of a magnetically oriented satellite. Journal of the Franklin Institute, 280(4):291–306, October 1965.
- [16] John L. Crassidis, F. Landis Markley, and Yang Cheng. Survey of Nonlinear Attitude Estimation Methods. Journal of Guidance, Control, and Dynamics, 30(1):12–28, January 2007.
- [17] B.D Cullity and C.D. Graham. Introduction to Magnetic Materials. Wiley-IEEE Press, 2 edition, 2008.
- [18] James Cutler, Matthew Bennett, Andrew Klesh, Hasan Bahcivan, and Rick Doe. The Radio Aurora Explorer: A Bistatic Radar Mission to Measure Space Weather Phenomenon. In AIAA/USU Conference on Small Satellites, pages 1–8, 2010.
- [19] James W. Cutler and Hasan Bahcivan. Radio Aurora Explorer: A Mission Overview. Journal of Spacecraft and Rockets, pages 1–9, June 2013.
- [20] Robert J Danchik. An Overview of Transit Development. John Hopkins APL Technical Digest, 19(1):18–26, 1998.
- [21] John Dormand. Numerical Methods for Differential Equations. CRC Press, Inc., 1 edition, 1996.
- [22] K. Stopfkuchen F. Mesch, G. Schweizer. Investigation of Earth Satellites with Magnetic Attitude Stabilization. In Proceedings of the First IFAC Symposium of Automatic Control in the Peaceful Uses of Space, pages 176–210, 1966.
- [23] C. C. Finlay, S. Maus, C. D. Beggan, T. N. Bondar, A. Chambodut, T. A. Chernova, A. Chuliat, V. P. Golovkov, B. Hamilton, M. Hamoudi, R. Holme, G. Hulot, W. Kuang, B. Langlais, V. Lesur, F. J. Lowes, H. Lühr, S. Macmillan, M. Manda, S. McLean, C. Manoj, M. Menvielle, I. Michaelis, N. Olsen, J. Rauberg, M. Rother, T. J. Sabaka, a. Tangborn, L. Tøfner Clausen, E. Thébault, A. W. P. Thomson, I. Wardinski, Z. Wei, and T. I. Zvereva. International Geomagnetic Reference Field: the eleventh generation. Geophysical Journal International, 183(3):1216–1230, December 2010.
- [24] Fausto Fiorillo, Fabio Santoni, Enzo Ferrara, Maria Libera Battagliere, Oriano Bottauscio, and Filippo Graziani. Soft Magnets for Passive Attitude Stabilization of Small Satellites. IEEE Transactions on Magnetics, 46(2):670–673, February 2010.
- [25] Robert E. Fischell. Magnetic and Gravity Attitude Stabilization of Earth Satellites. Technical report, The Johns Hopkins University Applied Physics Laboratory, Silver Spring, MD, 1961.
- [26] Thomas W. Flatley and Debra A. Henretty. A magnetic hysteresis model. Technical Report N95-27801, NASA GSFC, 1995.

- [27] Abigail Foerstner. What Van Allen found in space. Bulletin of the Atomic Scientists, 63(4):58–65,78, July 2007.
- [28] C.C. Foster and G.H. Elkaim. Extension of a two-step calibration methodology to include nonorthogonal sensor axes. Aerospace and Electronic Systems, 44(3), 2008.
- [29] T.A. Fritz. The passive magnetic orientation of satellite injun 3. Technical Report 65-21, Iowa University, 1965.
- [30] Carolin Fruh, Thomas Kelecy, and Moriba Jah. Attitude Dynamics Simulation of MLI Space Debris Objects in Geosynchronous Earth Orbits. In AIAA/AAS Astrodynamics Specialist Conference, number August, pages 1–18, 2012.
- [31] Demoz Gebre-Egziabher, Gabriel H. Elkaim, J. David Powell, and Bradford W. Parkinson. Calibration of Strapdown Magnetometers in the Magnetic Field Domain. Journal of Aerospace Engineering, 19(2):87, 2006.
- [32] Filippo Graziani, Fabrizio Piergentili, and Fabio Santoni. A space standards application to university-class microsatellites: The UNISAT experience. Acta Astronautica, 66:1534–1543, May 2010.
- [33] John Gurland and Ram Tripathi. A Simple Approximation for Unbiased Estimation of the Standard Deviation. The American Statistician, 25(4):30–32, 1971.
- [34] E. Hairer, S.P. Nørsett, and G. Wanner. Solving Ordinary Differential Equations I: Nonstiff Problems. Springer-Verlag, 2 edition, 1993.
- [35] Felix R. Hoots and Ronald L. Roehrich. Spacetrack report no. 3 models for propagation of norad element sets. Technical Report 3, 1980.
- [36] Peter Hughes. Spacecraft Attitude Dynamics. John Wiley & Sons, 1 edition, 1986.
- [37] Arieh Iserles, Hans Z Munthe-kaas, Syvert Norsett, and Antonella Zanna. Lie-group methods. Acta Numerica, pages 1–148, 2005.
- [38] Klas Johnsson. Munin - a swedish nanosatellite. In 4th IAA Symposium on Small Satellites for Earth Observation, number IAA-B4-0406P, 2003.
- [39] R. W. Kammuller. Nonlinear Resonant Roll Motion of Magnetically Oriented Satellites. AIAA Journal, 9(4):582–588, 1971.
- [40] R. W. Kammuller. Roll Resonance and Passive Roll Control of Magnetically Stabilized Satellites. AIAA Journal, 10(2):129–136, 1972.
- [41] T.S. Kelso. Visually Observing Earth Satellites. Satellite Times, 3(1):80–82, September 1996.
- [42] D. J. Knipp, T. Matsuo, L. Kilcommons, A. Richmond, B. Anderson, H. Korth, R. Redmon, B. Mero, and N. Parrish. Comparison of magnetic perturbation data from LEO satellite constellations: Statistics of DMSP and AMPERE. Space Weather, 12, January 2014.
- [43] Renjith Kumar, Daniel Mazanek, and Michael Heck. Simulation and Shuttle Hitchhiker Validation of Passive Satellite Aerostabilization. Journal of Spacecraft and Rockets, 32(5):806–811, 1995.

- [44] Daeyoung Lee, John C. Springmann, Sara C. Spangelo, and James W. Cutler. Satellite Dynamics Simulator Development Using Lie Group Variational Integrator. In Proceedings of the AIAA Modeling and Simulation Technologies Conference, pages 1–20, 2011.
- [45] Taeyoung Lee, N Harris Mcclamroch, and Melvin Leok. A Lie Group Variational Integrator for the Attitude Dynamics of a Rigid Body with Applications to the 3D Pendulum. IEEE Conference on Control Applications, pages 962–967, 2005.
- [46] E.J. Lefferts, F.L. Markley, and M.D. Shuster. Kalman Filtering for Spacecraft Attitude Estimation. Journal of Guidance, Control, and Dynamics, 5(5):417–429, 1982.
- [47] Jean-Francois Levesque. Passive magnetic attitude stabilization using hysteresis materials. Technical Report SIGMA-PU-006-UdeS, Université de Sherbrooke, 1995.
- [48] X. Li, Q. Schiller, L. Blum, S. Califf, H. Zhao, W. Tu, D. L. Turner, D. Gerhardt, S. Palo, S. Kanekal, D. N. Baker, J. Fennell, J. B. Blake, M. Looper, G. D. Reeves, and H. Spence. First results from CSSWE CubeSat: Characteristics of relativistic electrons in the near-Earth environment during the October 2012 magnetic storms. Journal of Geophysical Research: Space Physics, 118, October 2013.
- [49] Xinlin Li, Scott Palo, Rick Kohnert, Lauren Blum, David Gerhardt, Quintin Schiller, and Sam Califf. Small Mission Accomplished by Students-Big Impact on Space Weather Research. Space Weather, 11(2):55–56, February 2013.
- [50] Xinlin Li, Scott Palo, Rick Kohnert, David Gerhardt, Lauren Blum, Quintin Schiller, Drew Turner, Weichao Tu, Nathan Sheiko, and Chris S. Cooper. Colorado student space weather experiment: Differential flux measurements of energetic particles in a highly inclined low earth orbit. In Dynamics of the Earth’s Radiation Belts and Inner Magnetosphere, volume 199 of Geophysical Monograph Series, pages 385–404, 2012.
- [51] C. a. Loewe and G. W. Prölss. Classification and mean behavior of magnetic storms. Journal of Geophysical Research, 102(A7):14,209–14,213, 1997.
- [52] Matthew Long, Allen Lorenz, Greg Rodgers, Eric Tapio, Glenn Tran, Keoki Jackson, Robert Twiggs, and Thomas Bleier. A CubeSat Derived Design for a Unique Academic Research Mission In Earthquake Signature Detection. In USU Conference on Small Satellites, pages 1–17, 2002.
- [53] B Maag and K. Stopfkuchen. Flight Experience with the Passive Magnetic Attitude Control System of the First German Satellite Azur. In Proceedings of the 4th IFAC Symposium on automatic control in space, page 25, Friedrichshafen, Germany, 1971. Control Division, Dornier System GmbH.
- [54] F Landis Markley. Attitude Error Representations for Kalman Filtering. Journal of Guidance, Control, and Dynamics, 26(2), 2003.
- [55] Göran Marklund, Mats André, Rickard Lundin, and Sven Grahn. The Swedish Small Satellite Program for Space Plasma Investigations. Space Science Reviews, 111(3/4):377–413, April 2004.

- [56] B.J. O'Brien, C. D. Laughlin, and D. A. Guernett. High-Latitude Geophysical Studies with Satellite Injun 3 1. Description of the Satellite. Journal of Geophysical Research, 69(1):1–12, 1964.
- [57] M. Yu. Ovchinnikov and V.I. Penkov. Passive magnetic attitude control system for the munin nanosatellite. Cosmic Research, 40(2):142–156, 2002.
- [58] G. Park, S. Seagraves, and N. H. McClamroch. A Dynamic Model of a Passive Magnetic Attitude Control System for the RAX Nanosatellite. In AIAA Guidance, Navigation and Control Conference, number August, 2010.
- [59] J. M. Picone, A.E. Hedin, and D.P. Drob. NRLMSISE-00 empirical model of the atmosphere: Statistical comparisons and scientific issues. Journal of Geophysical Research, 107(A12):1–16, 2002.
- [60] Gerd W. Prölss. Physics of the Earth's Space Environment. Springer Press, 1 edition, 2004.
- [61] Samir Rawashdeh. Passive Attitude Stabilization for Small Satellites. University of Kentucky Masters Thesis, 2009.
- [62] Fabio Santoni and Fabrizio Piergentili. Unisat-3 Attitude Determination Using Solar Panel and Magnetometer Data. In International Astronautical Federation - 56th International Astronautical Congress, pages 2812–2819, 2005.
- [63] Fabio Santoni and Mauro Zelli. Passive magnetic attitude stabilization of the unisat-4 microsatellite. Acta Astronautica, 65:792–803, 2009.
- [64] S. Schalkowsky and M. Harris. NASA Space Vehicle Design Criteria (Guidance and Control): Spacecraft Magnetic Torques. NASA SP-8018. Technical report, 1969.
- [65] Hanspeter Schaub and John L. Junkins. Analytical Mechanics of Space Systems. American Institute of Aeronautics and Astronautics, Inc., 1 edition, 2003.
- [66] Quintin G. Schiller, Abhishek Mahendrakumar, and Xinlin Li. REPTile : A Miniaturized Detector for a CubeSat Mission to Measure Relativistic Particles in Near-Earth Space. In USU Conference on Small Satellites, pages SSC10–VIII–1, 2010.
- [67] Jinglai Shen, Amit K. Sanyal, Nalin A. Chaturvedi, Dennis Bernstein, and Harris McClamroch. Dynamics and Control of a 3D Pendulum. In 43rd IEEE Conference On Decision and Control, pages 323–328, 2004.
- [68] Garrett Lee Skrobot and Roland Coelho. ELaNa - Educational Launch of Nanosatellite: Providing Routine RideShare Opportunities. In Small Satellite Conference, 2012.
- [69] Ahmet Sofyali and Rustem Aslan. Magnetic attitude control of small satellites: A survey of applications and a domestic example. Technical report, Istanbul Technical University, 2011.
- [70] John C Springmann. On-Orbit Calibration of Photodiodes for Attitude Determination. In Small Satellite Conference, number March, pages SSC13–VIII–1, 2013.
- [71] John C Springmann and James W Cutler. Initial Attitude Analysis of the RAX Satellite. In Proceedings of the AIAA/AAS Astrodynamics Specialist Conference, pages 1–20, 2011.

- [72] John C. Springmann and James W. Cutler. Attitude-Independent Magnetometer Calibration with Time-Varying Bias. Journal of Guidance, Control, and Dynamics, 35(4):1080–1088, July 2012.
- [73] John C Springmann, Benjamin P Kempke, and James W Cutler. Initial Flight Results of the RAX-2 Satellite. In Small Sat Conference, 2012.
- [74] M Swartwout, C Kitts, R Twiggs, T Kenny, B Raysmith, R Lu, K Stattenfield, and F Prana-jaya. Mission results for Sapphire, a student-built satellite. Acta Astronautica, 62(8-9):521–538, April 2008.
- [75] Hank Heidt; Jordi Puig-Suari; Augustus Moore; Shinichi Nakasuka; Robert Twiggs. Cubesat: A new generation of picosatellite for education and industry low-cost space experimentation. In Small Satellite Conference, SSC00-V-5. AIAA/USU, 2000.
- [76] Robert Twiggs. Space System Developments at Stanford University - From Launch Experience of Microsatellites to the Proposed Future use of Picosatellites. In SPIE, volume 4136, pages 79–86, 2000.
- [77] David A. Vallado. Fundamentals of Astrodynamics and Applications. Microcosm Press, 2 edition, 2001.
- [78] David A. Vallado. Fundamentals of Astrodynamics and Applications. Microcosm Press, 3 edition, 2007.
- [79] David A. Vallado, Paul Crawford, Richard Hujak, and T. S. Kelso. Revisiting Spacetrack Report #3, volume 6753. American Institute of Aeronautics and Astronautics, 2006.
- [80] R.E. Walpole, R.H. Myers, S.L. Myers, and K. Ye. Probability and Statistics for Engineers and Scientists. Pearson Prentice Hall, 8 edition, 2007.
- [81] Hugh D. Young and Roger A. Freedman. University Physics. Addison Wesley, 11 edition, 2003.