

**Kevin M. Crosby, Ph.D.**   [kcrosby@carthage.edu](mailto:kcrosby@carthage.edu)   <http://faculty.carthage.edu/kcrosby/>  
Carthage College • 2001 Alford Park Drive, Kenosha, WI 53140 • (262) 551-5855

### Appointments

2014 – :        Director, Wisconsin Space Grant Consortium  
2018 – :        Visiting Senior Scientist (Intergovernmental Personnel Agreement), Advanced  
Exploration Systems, NASA Kennedy Space Center  
2018 – 2019:   Visiting Senior Scientist (Intergovernmental Personnel Agreement), Power and  
Propulsion Division, NASA Johnson Space Center  
2015 – 2017:   Dean, Division of Natural and Social Sciences, Carthage College  
2005 – 2014:   Chair, Division of Natural Sciences, Carthage College  
2001 – 2005:   Chair, computer science department, Carthage College  
1999 – 2001:   Chair, physics department, Carthage College

### Academic Rank Appointments

2011 – :        Professor, Carthage College  
2004 – 2011:   Associate Professor, Carthage College  
1998 – 2004:   Assistant Professor, Carthage College  
1996 – 1997:   Visiting Assistant Professor, Univ. Northern Colorado  
1993 – 1994:   Lecturer in Physics, Miracosta College  
1992 – 1993:   Lecturer, California State University at Sacramento  
1991 – 1992:   Adjunct Instructor in Physics, Cosumnes River College

### Recent Awards and Grants (2014-2021)

P.I. on Over \$13M in Federal and Foundation support for space science research and education efforts.

- NASA Flight Opportunities Program: *Propellant Gauging during On-orbit Refueling and Transfer Operations*, 2021-2023. \$600,000. **P.I.**
- NASA: Increment Funding for Embedded Teacher Program, 2020-2022. \$144,795. **P.I.**
- NASA Flight Opportunities Program: *Propellant Gauging in Gateway Architecture Vehicles*, 2020-2021. \$484,000. **P.I.**
- Air Force SBIR Phase I: *Positive Expulsion of Propellant and Slosh Mitigation Using a Magneto-Active Free-float Membrane*. \$250,000 (**co-I**). Submitted/Pending.
- NASA Flight Opportunities Program: *Magneto-Active Slosh Control System for Spacecraft and Launch Vehicles*, 2019-2020. \$271,749. **P.I.**
- NASA National Space Grant College and Fellowship Program: *Lead Institution/Director, Wisconsin Space Grant Consortium*, 2014-2024. \$5,988,000. **P.I.**
- NASA SEAP: *First Nations Launch Competition*, 2014-2018. \$600,000. **P.I.**
- NASA Flight Opportunities Program: *Modal Propellant Gauging in Microgravity Phase III, 2017-2018*. \$285,000. **P.I.**
- NASA Undergraduate Student Instrument Project: *CaNOP CubeSat*, 2016-2018. \$209,700. **P.I.**
- NASA Flight Opportunities Program: *Modal Propellant Gauging in Microgravity Phase II*, 2016-2017. \$163,000. **P.I.**
- NASA Flight Opportunities Program: *Modal Propellant Gauging in Microgravity*, 2015-2016. \$125,420. **P.I.**

- Midstates Math and Science Consortium: *Janet Anderson Lecture Award*, 2014.
- NSF Noyce STEM Teacher Training Grant: *Community Alliance for STEM Teaching (CAST)*, 2014-2016. \$299,131. **P.I.**
- NASA Cooperative Agreement *STEM Persistence through Early Engagement with Balloon-Platform Research*, 2014-2017. \$485,844. **P.I.**

### Recent Publications (2010-2020)

- *Liquid Propellant Mass Measurement in Microgravity*. Kevin M. Crosby, Rudolph J. Werlink, Eric A. Hurlbert. *Gravitational and Space Research* (9). 2021. 50-61. 10.2478/gsr-2021-0004.202.1
- *On-Orbit Propellant Transfer and Mass Gauging*. Proceedings of the International Conference on Environmental Systems 2020, Lisbon, Portugal. August 2020.
- *Modal Propellant Gauging: The Spectral Density Method*. Kevin M. Crosby, Rudolph J. Werlink, Eric A. Hurlbert. *AIAA SPACE 2020*. January 2020. <https://doi.org/10.2514/6.2020-1443>
- *The CaNOP CubeSat Mission: Updates, Results, and Applications*. Andrew Santangelo, Kevin M. Crosby. Accepted for publication in *AIAA ASCEND 2020*. Publication in November 2020.
- *Design and Testing of a Field Gradient System to Control a Hybrid Magneto-active Slosh Control System*. Manikanda Vairamani, Kevin M. Crosby, Pedro J. Llanos, Sathya N. Gandadharan, Nagendra Somanath. Proceedings of the *AIAA SCITECH 2020 Forum*. 6-10 January 2020. Orlando, FL. <https://doi.org/10.2514/6.2020-2051>. January 2020.
- *Preliminary Results from the Modal Propellant Gauging Experiment on New Shepard P9*. Kevin M. Crosby, Taylor Peterson, Cassi Bossong, Celestine Ananda, Nicholas Bartel, Megan Janiak, Sheila Franklin, and Rudy Werlink. Proceedings of the Next-Generation Suborbital Researchers Conference. March 2020. Broomfield, CO. <https://www.boulder.swri.edu/NSRC2020/Site5/PDF/Crosby.pdf>
- *Modal Propellant Gauging: High-resolution and non-invasive gauging of both settled and unsettled liquids in reduced gravity*, Crosby, K.M., Williams, N.J., Werlink, R.J., Hurlbert, E.A. *Acta Astronautica* (2019). ISSN 0094-5765.
- *Modal Propellant Gauging: High-resolution and non-invasive gauging of both settled and unsettled liquids in reduced gravity*, *Acta Astronautica*. Crosby, K.M., Williams, N., Werlink, R., Hurlbert, E. (2018). International Astronautical Congress.
- *Modal Propellant Gauging in Low Gravity*, Crosby, K.M., Rundle, T., LeCaptain, K., & Werlink, R. (2016). *AIAA SPACE 2016*. American Institute of Aeronautics and Astronautics.
- *Degassing of FC-72 in Microgravity*, Weiland, D., Crosby, K.M., Hall, N., Proceedings of the 23rd Annual Wisconsin Space Grant Consortium (2013).
- *Experimental modal analysis of fluid volume in spacecraft propellant tanks in microgravity*, Mathe, S., Lubick, K., Crosby, K.M., Werlink, R., Proceedings of the 23rd Annual Wisconsin Space Grant Consortium (2013).
- *Zero Gravity Fuel Gauging Using Modal Analysis* (Proceedings Abstract), Crosby, K.M., Werlink, R., Mathe, S., Lubick, L., Proceedings of the 2013 Next-generation Suborbital Researchers Conference, June 3-5, Broomfield, CO.

- Book Review: *The Physics of War*, *Physics Today* **67**(9), September (2014).
- *Modal Evaluation of Fluid Volume in Spacecraft Propellant Tanks* (Proceeding Abstract), Crosby, K.M., Werlink, R., Mathe, S., Lubick, K., Annual Meeting of the Lunar Exploration Analysis Group, held October 22-24, 2012 in Greenbelt, MD.
- *Modal Evaluation of Fluid Volume in Spacecraft Propellant Tanks: Part I, II*, Finnvik, S., Metallo, S., Robinson, J., Crosby, K.M., Werlink, R., Proceedings of the 21th Annual Wisconsin Space Grant Consortium (2011).
- *Investigation of Propellant Sloshing and Zero Gravity Equilibrium for the Orion Service Module Propellant Tanks*, Bakkum, A., Shultz, K., Finnvik, S., Fritz, I., Frye, B., Grove, C., Hartstern, K., Kreppel, S., Schiavone, E., Crosby, K. M., Proceedings of the 20th Annual Wisconsin Space Conference (2010).
- *Slosh Dynamics in the Orion Downstream Propellant Tank* (Proceedings Abstract), Crosby, K.M., Bakkum, A., Finnvik, S., Fritz, I., Frye, B., Grove, C., Hartstern, K., Kreppel, S., Schultz, K., Braun, J.P., Annual Meeting of the Lunar Exploration Analysis Group, held September 14-17, 2010 in Washington, D.C.
- *Reduced Pressure Cyclone Separation Studies using Synthetic Lunar Regolith*, Mackey, J. R., Agui, J. H., Crosby, K. M., Frye, B., Sietz, T., Symposium Report of the 40th International Conference on Environmental Systems, Barcelona, Spain, July, 2010.