

Curriculum Vita

Zoltan Sternovsky

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LABORATORY FOR ATMOSPHERIC AND SPACE PHYSICS
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EDUCATION

- 2001** Charles University, Prague, Czech Republic
Ph.D. in Physics (Elementary processes in dusty plasmas)
- 1998** Charles University, Prague, Czech Republic
M.S. in Physics

PROFESSIONAL EXPERIENCE

- 2016 – Present** Associate Professor
LASP, University of Colorado & Smead Aerospace Engineering
Sciences, University of Colorado
- 2009 – 2016** Assistant Professor
LASP, University of Colorado &
Smead Aerospace Engineering Sciences, University of Colorado
- 2005 – Present** Research Scientist
LASP, University of Colorado
- 2002 – 2004** Research Associate
Physics Department, University of Colorado
- 1999 – 2002** Research Assistant
Physics Department, University of Colorado
- 1998 – 1999** Graduate Research Assistant
Charles University, Prague, Czech Republic

HONORS AND AWARDS

- 2016 – Promotion to Associate Professor**, Smead Aerospace Engineering Sciences
Department, University of Colorado
- 2016 – Outstanding Junior Faculty**, Smead Aerospace Engineering Sciences

2011 - Young Scientist Award, Union of Pure and Applied Physics (IUPAP), "...pioneering contribution to the study of charged dust particle dynamics in laboratory and space plasmas"

PUBLICATIONS

Peer-Reviewed Journal Articles*

1. L. Nouzák, **Z. Sternovsky**, M. Horányi, S. Hsu, J. Pavlů, M.-H. Shen, S.-Y. Ye, Magnetic field effect on antenna signals induced by dust particle impacts, *J. Geophys. Res.* 125, <https://doi.org/10.1029/2019JA027245> (2020).
2. Ingrid Mann, Libor Nouzák, Jakub Vaverka, Tarjei Antonsen, Åshild Fredriksen, Karine Issautier, David Malaspina, Nicole Meyer-Verne, Jiří Pavlů, **Zoltan Sternovsky**, Joan Stude, Shengyi Ye, Arnaud Zaslavsky, Dust observations with antenna measurements and its prospects for observations with Parker Solar Probe and Solar Orbiter., *Annales Geophysicae*, 37(6), 1121–1140. <http://doi.org/10.5194/angeo-37-1121> (2019).
3. S. -Y. Ye, J. Vaverka, L. Nouzak, **Z. Sternovsky**, A. Zaslavsky, I. Mann, H.-W. Hsu, T. F. Averkamp, A. H. Sulaiman, D. Pisa, J. Pavlu, G. B. Hospodarsky, W. S. Kurth, M. Horanyi, Understanding Cassini RPWS Antenna Signals triggered by dust impacts, *Geophys. Res. Lett.*, 46(20), 10941–10950. <http://doi.org/10.1029/2019GL084150> (2019).
4. Barrie, A. C., F. Cipriani, C. P. Escoubet, S. Toledo-Redondo, R. Nakamura, K. Torkar, **Z. Sternovsky**, S. Elkington, D. Gershman, B. Giles, and C. Schiff, Characterizing Spacecraft Potential Effects on Measured Particle Trajectories, *Phys. Plasmas*, 26(10), 103504–13. <http://doi.org/10.1063/1.5119344> (2019).
5. M. DeLuca, **Z. Sternovsky** (2019). High-Speed Drag Measurements of Aluminum Particles in Free Molecular Flow. *Journal of Geophysical Research: Space Physics*, 4(2), 178–9. <http://doi.org/10.1029/2019JA026583>
6. Cohen, B. A., Szalay, J. R., Rivkin, A. S., Richardson, J. A., Klima, R. L., Ernst, C. M., Chabot, N. L., **Sternovsky, Z.**, Horanyi, M. (2019). Using dust shed from asteroids as microsamples to link remote measurements with meteorite classes. *Meteoritics & Planetary Science*, 448, 243–21. <http://doi.org/10.1111/maps.13348>
7. N. Swarnalingam, D. Janches, J. D. Carrillo-Sanchez, P. Pokorný, J. Plane, **Z. Sternovsky**, and D. Nesvorný, Modeling the Altitude Distribution of Meteor Head Echoes Observed with HPLA Radars - Implications on the Radar Detectability of Meteoroid Populations, *Astronom. J.*, 157(5), 179. <http://doi.org/10.3847/1538-3881/ab0ec6> (2019).
8. J. R. Szalay, P. Pokorný, **Z. Sternovsky**, Z. Kupihar, A. R. Poppe, M. Horányi, Impact Ejecta and Gardening in the Lunar Polar Regions. *Journal of Geophysical Research: Planets*, 124(1), 143–154. <http://doi.org/10.1029/2018JE005756> (2019).

* Underlined names indicate student authors.

9. A. C. Barrie, S. Elkington, **Z. Sternovsky**, D. Smith, B. Giles, and C. Schiff, Wavelet Compression Performance of MMS/FPI Plasma Count Data. *Earth and Space Science*, 2018EA000430–20. <http://doi.org/10.1029/2018EA000430> (2019).
10. A. Gerner, **Z. Sternovsky**, D. James, M. Horanyi, The effect of high-velocity dust particle impacts on microchannel plate (MCP) detectors, *Planetary and Space Science*. <http://doi.org/10.1016/j.pss.2018.12.011> (2019).
11. J. Fontanese, G. Clark, M. Horanyi, D. James, **Z. Sternovsky**, Microchannel Plate Efficiency to Detect Low Velocity Dust Impacts. *J. Geophys. Res.: Space Phys.*, 128(A23), 697–5. <http://doi.org/10.1029/2018JA025577> (2018).
12. D.J. McComas, E.R. Christian, N.A. Schwadron, N. Fox, J. Westlake, F. Allegrini, D.N. Baker, D. Biesecker, M. Bzowski, G. Clark, C.M.S. Cohen, I. Cohen, M.A. Dayeh, R. Decker, G.A. de Nolfo, M.I. Desai, R.W. Ebert, H.A. Elliott, H. Fahr, P.C. Frisch, H.O. Funsten, S.A. Fuselier, A. Galli, A.B. Galvin, J. Giacalone, M. Gkioulidou, F. Guo, M. Horanyi, P. Isenberg, P. Janzen, L.M. Kistler, K. Korreck, M.A. Kubiak, H. Kucharek, B.A. Larsen, R.A. Leske, N. Lugaz, J. Luhmann, W. Matthaeus, D. Mitchell, E. Moebius, K. Ogasawara, D.B. Reisenfeld, J.D. Richardson, C.T. Russell, J.M. Sokół, H.E. Spence, R. Skoug, **Z. Sternovsky**, P. Swaczyna, J.R. Szalay, M. Tokumaru, M.E. Wiedenbeck, P. Wurzel, G.P. Zank, E.J. Zirnstein, (2018). Interstellar Mapping and Acceleration Probe (IMAP): A New NASA Mission. *Space Science Reviews*, 214(8), 27–54. <http://doi.org/10.1007/s11214-018-0550-1>.
13. S.-Y. Ye, W. S. Kurth, G. B. Hospodarsky, A. M. Persoon, A. H. Sulaiman, D. A. Gurnett, M. Morooka, J.-E. Wahlund, H. -W. Hsu, **Z. Sternovsky**, X. Wang, M. Horanyi, M. Seiss, R. Srama, Dust Observations by the Radio and Plasma Wave Science instrument during Cassini's Grand Finale, *Geophys. Res. Lett.* 45, <https://doi.org/10.1029/2018GL078059> (2018).
14. A. C. Barrie, D. da Silva, S. Elkington, **Z. Sternovsky**, A. C. Rager, D. J. Gershman, W. R. Paterson, J. C. Dorelli, and B. Giles, Physically Accurate Large Dynamic Range Pseudo Moments for the MMS Fast Plasma Investigation. Physically accurate large dynamic range pseudo moments for the MMS fast plasma investigation. *Earth and Space Sci.* 5, 503–515, <https://doi.org/10.1029/2018EA000407> (2018).
15. Li, Y., Bugiel, S., Strack, H., Simolka, J., **Sternovsky, Z.**, Kempf, S., M. Horanyi, E. Grün, X. Li, R. Srama (2018). Determination of impact position on an impact ionization detector by electrostatic induction. *Advances in Space Research*, 62(4), 890–895. <http://doi.org/10.1016/j.asr.2018.05.026>
16. L. Nouzák, S. Hsu, D. Malaspina, F. M. Thayer, S.-Y. Ye, J. Pavlu, Z. Nemeček, J. Šafránková, **Z. Sternovsky**, Laboratory modeling of dust impact detection by the Cassini spacecraft. *Planetary and Space Science*, 156, 85–91. <http://doi.org/10.1016/j.pss.2017.11.014> (2018).
17. J. K. Hillier, **Z. Sternovsky**, S. Kempf, M. Tieloff, M. Guglielmino, F. Postberg, M. Price, Impact ionisation mass spectrometry of platinum-coated olivine and magnesite-dominated cosmic dust analogues. *Planetary and Space Science*, 156, 96–110. <http://doi.org/10.1016/j.pss.2017.10.002> (2018).

18. M. DeLuca, E. Thomas, T. Munsat, **Z. Sternovsky**, The ionization efficiency of aluminum and iron at meteoric velocities. *Planetary and Space Science*, 156, 111–116. <http://doi.org/10.1016/j.pss.2017.11.003> (2018).
19. L. O'Brien, A. Juhasz, M. Horanyi, **Z. Sternovsky**, Effects of interplanetary coronal mass ejections on the transport of nano-dust generated in the inner solar system. *Planetary and Space Science*, 156, 7–16. <http://doi.org/10.1016/j.pss.2017.11.013> (2018).
20. E. O'Shea **Z. Sternovsky** , and D. M. Malaspina (2017). Interpreting Dust Impact Signals Detected by the STEREO Spacecraft. *J. Geophys. Res. Space Phys.* 122, 11,864–11,873, <http://doi.org/10.1002/2017JA024786>
21. E. Thomas, J. Simolka, M. DeLuca, M. Horanyi, D. Janches, R. A. Marshall, T. Munsat, J.M.C. Plane, and **Z. Sternovsky**, Experimental setup for the laboratory investigation of micrometeoroid ablation using a dust accelerator, *Rev. Sci. Instrum.* 88, 034501, doi: <http://dx.doi.org/10.1063/1.4977832> (2017).
22. A. O. Nelson, R. Dee, Murthy S. Gudipati, M. Horanyi, D. James, S. Kempf, T. Munsat, **Z. Sternovsky**, and Z. Ulibarri, New experimental capability to investigate the hypervelocity micrometeoroid bombardment of cryogenic surfaces, *Rev. Sci. Instrum.* 87, 024502 (2016).
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24. E. Thomas, M. Horányi, D. Janches, T. Munsat, J. Simolka, and **Z. Sternovsky** (2016), Measurements of the ionization coefficient of simulated iron micrometeoroids, *Geophys. Res. Lett.* 43, doi:10.1002/2016GL068854
25. F. M. Thayer, D. M. Malaspina, A. Collette, **Z. Sternovsky**, Variation in Relative Dust Impact Charge Recollection with Antenna to Spacecraft Potential on STEREO, *J. Geophys. Res. Space Physics*, 121, doi:10.1002/2015JA0211983 (2016).
26. L. O'Brien, E. Grün, **Z. Sternovsky**, Optimization of the Nano Dust Analyzer (NDA) for operation under Solar UV Illumination, *Planet. Space Sci.* 119, 173–180, doi:10.1016/j.pss.2015.09.014 (2015).
27. D. M. Malaspina, L. O'Brien, F. Thayer, **Z. Sternovsky**, A. Collette, Revisiting STEREO Interplanetary and Interstellar Dust Flux and Mass Estimates, *J. Geophys. Res. Space Physics*, 120, doi:10.1002/2015JA021352 (2015).
28. A. Collette, G. Meyer, D. Malaspina, and **Z. Sternovsky**, Laboratory investigation of antenna signals from dust impacts on spacecraft, *J Geophys Res-Space*, DOI:10.1002/2015JA021198 (2015).
29. M. Horanyi, J. R. Szalay, S. Kempf, J. Schmidt, E. Grün, R. Srama, and **Z. Sternovsky**, “A permanent, asymmetric dust cloud around the Moon,” *Nature*, 522, 324–326, doi:10.1038/nature14479 (2015).

30. C. S. Arridge, N. Achilleos, J. Agarwal, ... Z. **Sternovsky**, et al., "The science case for an orbital mission to Uranus: Exploring the origins and evolution of ice giant planets," *Planet Space Sci*, 104, 122–140, (2014).
31. M. Horanyi, Z. **Sternovsky**, M. Lankton, C. Dumont, S. Gagnard, D. Gathright, E. Grün, D. Hansen, D. James, S. Kempf, B. Lamprecht, R. Srama, J. R. Szalay, and G. Wright, "The Lunar Dust Experiment (LDEX) Onboard the Lunar Atmosphere and Dust Environment Explorer (LADEE) Mission," *Space Sci Rev* 185, 93-113, DOI: 10.1007/s11214-014-0118-7 (2014).
32. A. Collette, E. Grün, D. Malaspina, and Z. **Sternovsky**, Micrometeoroid impact charge yield for common spacecraft materials, *J Geophys Res-Space*, 119, 6019–6026, DOI: 10.1002/2014JA020042 (2014).
33. L. O'Brien, S. Auer, A. Gemer, E. Grün, M. Horanyi, A. Juhasz, S. Kempf, D. Malaspina, A. Mocker, E. Moebius, R. Srama, Z. **Sternovsky**, Development of the Nano-Dust Analyzer (NDA) For Detection and Compositional Analysis of Nanometer-Size Dust Particles Originating in the Inner Heliosphere, in press, *Rev. Sci. Instrum.*, 85, 035113 doi: 10.1063/1.48685062014 (2014).
34. Yanwei Li, Ralf Srama, Hartmut Henkel, Zoltan **Sternovsky**, Sascha Kempf, Yiyong Wu, Eberhard Grüd, Instrument study of the Lunar Dust eXplorer (LDX) for a Lunar Lander Mission, in press, *Adv. Space Res* 54, 2094-2100, DOI: 10.1016/j.asr.2013.12.006 (2014).
35. Z. **Sternovsky**, S. Robertson, S. Dickson, J. Gumbel, J. Hedin, B. Strelnikov, H. Asmus, O. Havnes, In-situ Detection of Noctilucent Cloud Particles by the Colorado Dust Detectors onboard the PHOCUS Sounding Rocket, *J. Atmos Sol-Terr Phys.* 118, 145–150, DOI: 10.1016/j.jastp.2014.01.018 (2014).
36. A. Collette, Z. **Sternovsky**, M. Horanyi, Production of Neutral Gas by Micrometeoroid Impacts, *Icarus* 227, 89–93, doi: [10.1016/j.icarus.2013.09.009](https://doi.org/10.1016/j.icarus.2013.09.009) (2014).
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38. S. Robertson, S. Dickson, M. Horanyi, Z. **Sternovsky**, M. Friedrich, D. Janches, L. Megner, and B. Williams, Detection of meteoric smoke particles in the mesosphere by a rocket-borne mass spectrometer, *J Atmos Sol-Terr Phys* 118, 161-179, DOI: 10.1016/j.jastp.2013.07.007 (2014).
39. J. K. Hillier, Z. **Sternovsky**, S. P. Armes, L. A. Fielding, F. Postberg, S. Bugiel, K. Drake, R. Srama, A. T. Kearsley, and M. Trieloff, "Impact ionisation mass spectrometry of polypyrrole-coated pyrrhotite microparticles," *Planet Space Sci*, 97, 9–22, (2014).
40. A. Collette, K. Drake, A. Mocker, Z. **Sternovsky**, T. Munsat, and M. Horanyi, Time-resolved temperature measurements in hypervelocity dust impact, *Planet Space Sci.* 89, 58–62, (2013).
41. A. Mocker, K. Hornung, E. Gruen, S. Kempf, A. Collette, K. Drake, M. Horanyi, T. Munsat, L. O'Brien, Z. **Sternovsky**, and R. Srama, "On the application of a linear time-of-flight mass

spectrometer for the investigation of hypervelocity impacts of micron and sub-micron sized dust particles,” *Planet Space Sci*, vol. 89, pp. 47–57 (2013).

42. S. Dickson, M. Gausa, S. Robertson, and Z. **Sternovsky**, Channel electron multiplier operated on a sounding rocket without a cryogenic vacuum pump from 120 to 80 km altitude, *J Atmos Sol-Terr Phy*, 95, 51–58, doi:10.1016/j.jastp.2013.01.003 (2013).
43. J. Xie,¹ Z. **Sternovsky**, S. Auer, K. Drake, E. Grün, M. Horanyi, H. Le and R. Srama, Laboratory testing and data analysis of the Electrostatic Lunar Dust Analyzer (ELDA) instrument, *Planetary and Space Science*, <http://dx.doi.org/10.1016/j.pss.2013.01.004> (2013).
44. J. K. Hillier, F. Postberg, S. Sestak, R. Srama, S. Kempf, M. Tieloff, Z. **Sternovsky**, and S. F. Green, Impact Ionization Mass Spectra of Anorthite Cosmic Dust Analogue Particles, *J. Geophys. Res.* 117, E09002, doi:10.1029/2012JE004077 (2012).
45. A. Shu, A. Collette, K. Drake, E. Grun, M. Horanyi, S. Kempf, A. Mocker, T. Munsat, P. Northway, R. Srama, Z. **Sternovsky**, and E. Thomas, 3 MV hypervelocity dust accelerator at the Colorado Center for Lunar Dust and Atmospheric Studies, *Rev Sci Instrum* 83, 075108 (2012).
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47. P. Northway, S. Auer, K. Drake, M. Horanyi, A. Mocker, T. Munsat, A. Shu, Z. **Sternovsky**, E. Thomas, and J. Xie, Characteristics of a new dust coordinate sensor, *Meas Sci Technol* 23, 105902, (2012).
48. E. Grün, Z. **Sternovsky**, M. Horanyi, V. Hoxie, S. Robertson, J. Xi, S. Auer, M. Landgraf, F. Postberg, R. Srama, N. Starkey, J. Hillier, M. C. Price, I. A. Franchi, P. Tsou, A. Westphal, Z. Gainsforth, Active Cosmic Dust Collector, *Planet. Space Sci.* 60, 261-273. 10.1016/j.pss.2011.09.006 (2012).
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51. J. Xie,[†] **Z. Sternovsky**, E. Grün, S. Auer, N. Duncan, K. Drake, H. Le, M. Horanyi, and R. Srama, Dust Trajectory Sensor: Accuracy and data analysis, *Rev. Sci. Instrum.* 82, 105104 (2011).
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55. N. Duncan,¹ **Z. Sternovsky**, E. Grün, S. Auer, M. Horanyi, K. Drake, J. Xie, G. Lawrence, D. Hansen, The Electrostatic Lunar Dust Analyzer (ELDA) for the detection and trajectory measurement of slow dust particles on the lunar surface, *Planet. Space Sci.*, 59, 1446-1454 (2011).
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Peer-reviewed conference proceedings

1. Mihaly Horanyi, Sascha Kempf, Zoltan Sternovsky, Scott Tucker, Neal J. Turner, Tibor Balint, John L. West, Petr Pokorny, Jamey R. Szalay, The Fragments from the Origins of the Solar System and Interstellar Locale (FOSSIL) Mission Concept, IEEE Aerospace Conference, Big Sky, MT, March 2-9, doi: [10.1109/AERO.2019.8742223](https://doi.org/10.1109/AERO.2019.8742223) (2019).
2. A. Rivkin et al. (12 co-authors, including **Z. Sternovsky**). The Main-belt Asteroid and NEO Tour with Imaging and Spectroscopy (MANTIS), IEEE Aerospace Conference, Big Sky, MT, March 5-12, doi:10.1109/AERO.2016.7500757 (2015).
3. **Z. Sternovsky**, A. J. Gemer, E. Grün, M. Horanyi, S. Kempf, K. Maute, F. Postberg, R. Srama, E. Williams, "Hyperdust : An Advanced in-situ Detection and Chemical Analysis of Microparticles in Space", IEEE Aerospace Conference, Big Sky, MT, March 5-12, doi: 10.1109/AERO.2015.7119085 (2015).
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5. **Z. Sternovsky**, S. Auer, K. Drake, E. Grün, M. Horányi, H. Li, R. Srama, J. Xie, *Frontiers in In-Situ Cosmic Dust Detection and Analysis*, AIP Conference Proceedings, ICPDP2011, Vol. 1397 (2011).
6. M. Horanyi, A. Colette, K. Drake, E. Grün, S. Kempf, T. Munsat, S. Robertson, A. Shu, **Z. Sternovsky**, and X. Wang, "The Dust Accelerator Facility of the Colorado Center for Lunar Dust and Atmospheric Studies," *AIP Conference Proceedings*, ICPDP2011. Vol. 1397, pp. 375–376 (2011).
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8. M. Horanyi, X. Wang, S. Robertson, and **Z. Sternovsky**, "Surface-Plasma Interaction on the Moon," *AIP Conference Proceedings*, vol. 1041, pp. 113–116 (2008).
9. M. Landgraf, G. Drolshagen, **Z. Sternovsky**, S. Knappmiller, M. Horanyi, *Simulating Meteoroid Impacts Using High-Power Lasers*, *ESA Bulletin* 130, 56 (2007).
10. E. Grün, R. Srama, S. Helfert, S. Kempf, G. Moragas-Klostermeyer, H. Krüger, N. Altobelli, S. Auer, V. Dikarev, D. Harris, M. Horanyi, M. Rachev, A. Srowig, and **Z. Sternovsky**, *Prospects of Dust Astronomy missions*, Proc. 'Dust in Planetary Systems', Kauai, Hawaii, USA, 26-30 September 2005 (ESA SP-643, January 2007).
11. R. Srama, S. Kampf, G. Moragas-Klostermeyer, M. Landgraf, S. Helfert, **Z. Sternovsky**, M. Rachev, and E. Grün, *Laboratory tests of the Large Area Mass Analyzer*, Proc. 'Dust in

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13. J. Gumbel, T. Waldemarsson, F. Giovane, M. Khaplanov, J. Hedin, B. Karlsson, S. Lossow, L. Megner, J. Stegman, K. H. Fricke, U. Blum, P. Voelger, S. Kirkwood, P. Dalin, **Z. Sternovsky**, S. Robertson, M. Horanyi, R. Stroud, D. E. Siskind, R. R. Meier, J. Blum, M. Summers, J. M. C. Plane, N. J. Mitchell, and M. Rapp, "The MAGIC rocket campaign: an overview," In: 17th ESA Symposium on European Rocket and Balloon Programmes and Related Research, vol. 590, pp. 139–144, Aug. 2005.
14. **Z. Sternovsky**, M. Horanyi, and S. Robertson, "Lunar and Martian dust charging on surfaces," presented at the DUSTY PLASMAS IN THE NEW MILLENNIUM: Third Conference on the Physics of Dusty Plasmas. AIP Conference Proceedings, vol. 649, pp. 402–405 (2002).
15. S. Robertson and **Z. Sternovsky**, "Charge Exchange Collisions and the Current to Probes and Dust Particles," Dusty Plasmas in the New Millennium: 3rd International Conference on the Physics of Dusty Plasmas, vol. 649, pp. 208–211, Dec. (2002).

PRESENTATIONS

Seminars, invited and public talks

1. In situ dust detector/analyzer instruments and supporting laboratory measurements, Remote Sensing Seminar Series, Smead Aerospace Eng. Sci. Department, University of Colorado, Boulder, CO, Nov. 8, 2019.
2. The Impact Ionization Process, Physics of Dust Impacts: Detection of Cosmic Dust by Spacecraft and its Influence on the Plasma Environment, International Space Science Institute, Bern, Switzerland, Oct. 31. – Nov. 2, 2018.
3. Understanding the Solar System Through the In Situ Detection and Analysis of Cosmic Dust Particles, Colloquium, Physics Department, Colorado State University, Fort Collins, Nov. 12, 2018.
4. Dust ablation laboratory experiments to measure the plasma and light production of meteoroids in the atmosphere, AGU Fall Meeting, New Orleans LA, Dec. 11-15, 2017.
5. Dust impact detection by dust impacts in space, Friends of Magnetospheres seminar, LASP, University of Colorado, Nov. 8, 2016.

6. In-situ dust detector/analyzer instruments and laboratory measurements, ISSI Workshop on Cosmic Dust from the Lab to the Stars, Oct. 31 - Nov 4, 2016, Bern, Switzerland
7. In-Situ Detection and Analysis of Cosmic Dust Particles: from the Upper Atmosphere to Distant Worlds, Seminar, University of Tromso, September 28, 2016.
8. Laboratory simulation of micrometeoroid ablation, Z. Sternovsky, M. DeLuca, E. Thomas, M. Horanyi, D. Janches, T. Munsat, J.M.C. Plane, Meteoroids 2016, ESA Noordwijk, June 6-10, 2016.
9. Micrometeoroid ablation simulated in the laboratory, Z. Sternovsky, E. Thomas, M. Horanyi, D. Janches, T. Munsat, J.M.C. Plane, J. Simolka, invited talk, 12th International Workshop on Layered Phenomena in the Mesopause, Boulder, CO, Aug. 10-13, 2015.
10. Lunar dust, Tutorial Lecture, 3rd International Workshop on Diagnostics and Simulation of Dusty Plasmas, Kiel, Germany, 26-28 August 2012.
11. Modern dust instruments for the exploration of the Moon and small bodies, Dust, Atmosphere and Plasma: Moon and Small Bodies workshop, Boulder, CO, June 6-8, 2012.
12. Dust detection in space, Invited lecture, PhD Research School organized by the University of Oslo, Andoya Rocket Range, Norway, Oct. 5, 2011.
13. Revisiting the moon: detection and analysis of lunar dust, Department of Meteorology, Stockholm University, Stockholm, Sweden, Sep 26, 2011.
14. Frontiers in in-situ cosmic dust detection and analysis, 6th International Conference on the Physics of Dust Plasmas, Garmish-Partenkirchen, Germany, May 16-20, 2011.
15. The lunar surface: a dusty plasma laboratory, NLSI Director's Virtual Seminar Series November 8, 2010.
16. Investigation of near-surface lunar dust transport in the laboratory, 38th COSPAR Scientific Assembly, 18 – 25 July 2010, Bremen, Germany
17. Dust in Space – What Can We Learn from It? LASP public lecture, May 5, 2010
18. CCLDAS: Colorado Center for Lunar Dust and Atmospheric Studies, Seminar, Max-Planck Institute for Nuclear Physics, December, 2009.
19. The Lunar Dust EXperiment (LDEX) for LADEE, or How to design a dust detector, Seminar at the Center for Integrated Plasma Studies, University of Colorado, Oct 30, 2009.

20. The Lunar Dust EXperiment (LDEX) for the Lunar Atmosphere and Dust Environment Explorer (LADEE) Mission, Seminar, Max-Planck Institute for Nuclear Physics, July 29, 2009.
21. Rocket-borne instrument to detect charged smoke and cloud particles in the mesosphere, AGU Fall Meeting, 13-17 December 2004, San Francisco, CA
22. Rocket-borne instrument to detect charged smoke and cloud particles in the mesosphere, URSI National Science Meeting, 5-8 January, Boulder, CO

Conference presentations (since 2018)

2019

1. Refining the mechanisms of dust detection by antenna instruments, Ming-Hsueh Shen, Zoltan Sternovsky, Libor Nouzak, Mihály Horányi, David Malaspina, Sean Hsu, and Sheng-Yi Ye, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.
2. Dust Detection in Space by Radio and Plasma Wave Instruments, Sheng-Yi Ye, Jakub Vaverka, Libor Nouzak, Zoltan Sternovsky, Arnaud Zaslavsky, Ingrid Mann, Sean Hsu, Terrance Averkamp, Ali Sulaiman, David Pisa, Jiri Pavlu, George Hospodarsky, William Kurth, and Mihaly Horanyi, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.
3. Dust Astronomy with DESTINY PLUS at 1 AU, Ralf Srama, Masanori Kobayashi, Harald Krüger, Tomoko Arai, Hiroshi Kimura, Mario Tieloff, Jessica Agarwal, Yanwei Li, Frank Postberg, Nozair Khawaja, Jon K. Hillier, Maximilian Sommer, Heiko Strack, Nicolas Altobelli, Sascha Kempf, Zoltan Sternovsky, and Anna Mockler, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.
4. The effect of magnetic field on dust impact signals detected by RPWS, Libor Nouzak, Jiri Pavlu, Jakub Vaverka, Sean Hsu, Shengyi Ye, Jana Safrankova, Zdenek Nemecek, and Zoltan Sternovsky, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.
5. Dust Observations with Antenna and Faraday Cup Measurements, Jiri Pavlu, Ingrid Mann, Tarjei Antonsen, Ashild Fredriksen, Ove Havnes, Michael C. Lue, Libor Nouzak, Zoltan Sternovsky, Joan Stude, Jakub Vaverka, Shengyi Ye, and Arnaud Zaslavsky, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.
6. FOSSIL – Fragments from the Origins of our Solar System: Exploring the Chemical Diversity of Comets, Asteroids, and Interstellar Dust at 1 AU, Zoltan Sternovsky, Mihaly Horanyi, Tibor Balint, Julie Castillo-Rogez, Antal Juhasz, Sascha Kempf, Peter Pokorny, Andrew Poppe, Ralf Srama, Jamey Szalay, Neal Turner, and Diane Wooden, European Geological Union General Assembly 2019, Vienna, Austria, 7-12 April 2019.

7. FOSSIL - Fragments from the Origins of our Solar System: Exploring the Chemical Diversity of Comets, Asteroids, and Interstellar Dust at 1 AU, Zoltan Sternovsky, Meteoroids 2019, Bratislava, Slovakia, 17-21 June, 2019.
8. Multi-Asteroid eNcounter Tour with Imaging and Spectroscopy (MANTIS), Andrew Rivkin, Barbara Cohen, Olivier Barnouin, Carolyn Ernst, Nancy Chabot, Brett Denevi, Benjamin Greenhagen, Rachel Klima, Mark Perry, and Zoltan Sternovsky and the The MANTIS Science Team, SSERVI Science Exploration Forum, July 23-25, 2019, Mountain View, CA.
9. On the Genesis and Detectability of Organic Chemistry in Hypervelocity Impact Ice Spectra, Zach ULIBARRI, Tobin MUNSAT, Bernd ABEL, Richard DEE, Mihaly HORANYI, David JAMES, Sascha KEMPF, Zoltan KUPIHAR, Zoltan STERNOVSKY, AOGS Annual Meeting, 28 July – 2 August, 2019, Singapore.
10. Dust Impacts on Spacecraft Detected by Electric Field Antennas, Sheng-Yi YE, William KURTH, George HOSPODARSKY, Terrance AVERKAMP, Ali SULAIMAN, Hsiang-Wen HSU, Zoltan STERNOVSKY, J. VAVERKA, L. NOUZAK, A. ZASLAVSKY, Ingrid MANN, David PÍŠA, Jiri PAVLU, Mihaly HORANYI, AOGS Annual Meeting, 28 July – 2 August, 2019, Singapore.
11. Interstellar Dust Measurements with the Interstellar Probe, Ralf Srama, Harald Krüger, Veerle Sterken, Peter Strub, Nicolas Altobelli, Thomas Albin, Mihaly Horanyi, Sean Hsu, Sascha Kempf, Hiroshi Kimura, Anna Mocker, Yanwei Li, Frank Postberg, Heiko Strack, Jonas Simolka, Maximilian Sommer, Zoltan Sternovsky, and Mario Trieloff, ESC-DPS Joint Meeting 2019, 15-20 Sept. 2019, Geneva, Switzerland.
12. The Main-belt Asteroid and NEO Tour with Imaging and Spectroscopy (MANTIS), Andrew Rivkin, Barbara Cohen, Olivier Barnouin, Carolyn Ernst, Nancy Chabot, Brett Denevi, Benjamin Greenhagen, Rachel Klima, Mark Perry, and Zoltan Sternovsky and the The MANTIS Science Team, ESC-DPS Joint Meeting 2019, 15-20 Sept. 2019, Geneva, Switzerland.
13. Electrostatic Dust Analyzer (EDA) for characterizing dust transport on the lunar surface, Xu Wang, Zoltan Sternovsky, Mihaly Horanyi, Jan Deca, Ian Garrick-Bethell, William Farrell, Joseph Minafra, and Lucas Bucciardini, ESC-DPS Joint Meeting 2019, 15-20 Sept. 2019, Geneva, Switzerland.
14. Differential ablation of organic-coated micrometeoroids observed in the laboratory, Michael DeLuca, Zoltan Sternovsky, Mihaly Horanyi, Tobin Munsat, Juan Diego Carillo-Sanchez, John Plane, and Diego Janches, ESC-DPS Joint Meeting 2019, 15-20 Sept. 2019, Geneva, Switzerland.
15. The Sufarce Dust Analyzer (SUDA): Compositional Mapping of Europa's Surface, S Kempf, Z Sternovsky, M Horanyi, KP Hand, R Srama, F Postberg, ... AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
16. In Orbit Exploration of the Available Resources in Permanently Shadowed Lunar Polar Regions, Z Sternovsky, M Horanyi, S Kempf, JR Szalay, AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
17. Fragments from the Origins of the Solar System and our Interstellar Locale (FOSSIL): A Discovery Mission Concept, M Horanyi, NJ Turner, C Alexander, N Altobelli, T Balint, JC Castillo, ... AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.

18. Investigations of electrostatic dust transport on the lunar surface, X Wang, N Hood, A Carroll, HW Hsu, Z Sternovsky, M Horanyi, AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
19. Ablation of Organics from Simulated Micrometeoroids, M DeLuca, Z Sternovsky, M Horanyi, T Munsat, JDC Sánchez, JMC Plane, ..., AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
20. Dust Impact Ionization Charge Yields from Gold and Silver Targets, A Taylor, M DeLuca, Z Sternovsky, M Horanyi, S Kempf, AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
21. Laboratory Dust Ablation Experiments to Characterize Meteoric Luminous Efficiencies, LK Tarnecki, RA Marshall, Z Sternovsky, TL Munsat, M DeLuca, AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.
22. The E-ring Asymmetry and Saturn's Noon-to-midnight Electric Field, A Juhasz, S Hsu, M Horanyi, S Kempf, Z Sternovsky, AGU Fall Meeting, San Francisco, CA, 9-13 December, 2019.

2018

1. In-situ measurements of electrostatically lofted dust on the lunar surface, X. Wang, Z. Sternovsky, and M. Horányi, Lunar Science for Landed Missions workshop, NASA Ames, January 10-12, 2018.
2. Revolutionizing our Understanding of Heliospheric Dust Dynamics from the Deep Space Gateway, D. M. Malaspina, M. Horányi, and Zoltan Sternovsky, Deep Space Gateway Science Workshop, Feb. 27 – March 1, Denver, CO.
3. Impact Ejecta Clouds: A Scientific Resource for Understanding Asteroid Origins and Evolution, J. R. Szalay, B. Cohen, M. Horányi, A. S. Rivkin, and Z. Sternovsky, 49th Lunar and Planetary Science Conference, The Woodlands, Texas, March 19-23, 2018
4. Cubesat electrostatic dust analyzer (CEDA) for exploring dust transport processes on airless planetary bodies, X. Wang, Z. Sternovsky, and M. Horányi, 49th Lunar and Planetary Science Conference, The Woodlands, Texas, March 19-23, 2018
5. Cubesat Electrostatic Dust Analyzer (CEDA) for Measuring Regolith Transport on Airless Bodies, X. Wang, Z. Sternovsky, M. Horányi, and the Dust BUSTER Team, 32nd Annular Small Satellite Conference, Logan UT, Aug. 4-9, 2018
6. Dust detection in space by wave instruments: Cassini and Juno observations, Shengyi Ye, William Kurth, George Hospodarsky, Donald Gurnett, Zoltan Sternovsky, Hsiang-Wen Hsu, Mihaly Horanyi, COSPAR 42nd Assembly, July 14-22, Pasadena, CO.
7. Interplanetary and Interstellar Dust Near Earth (iDUNE): Exploring the Diversity of the Chemical Makeup of Solar System Bodies from 1 AU, Mihaly Horanyi, Eberhard Grun, Antal Juhasz, Sascha Kempf, Marcus M. Piquette, Petr Pokorny, Andrew Poppe, Julie Castillo-Rogez, Ralf Srama, Zoltan Sternovsky, Jamey Szalay, and Tibor Balint, EGU General Assemble, Vienna, Austria, April 8-13, 2018
8. Dust impact detection by Faraday cup in space and laboratory, Libor Nouzak, Jiri Pavlu, Samuel Kociscak, Jana Safrankova, Zdenek Nemecek, and Zoltan Sternovsky, EGU General Assemble, Vienna, Austria, April 8-13, 2018

9. Physics of dust impacts in space - previous and future measurements from spacecraft, Ingrid Mann, Åshild Fredriksen, Ove Havnes, Tarje Antonsen, Arnaud Zaslavsky, Zoltan Sternovsky, Jakub Vaverka, Asta Pellinen-Wannberg, Frank Postberg, Jiri Pavlu, Joan Stude, Shengyi Ye, and Sigrid Close, EGU General Assemble, Vienna, Austria, April 8-13, 2018
10. Dust Observations by the Radio and Plasma Wave Science Instrument During Cassini's Grand Finale, Shengyi Ye, William Kurth, George Hospodarsky, Ann Persoon, Ali Sulaiman, Donald Gurnett, Michiko Morooka, Jan-Erik Wahlund, Sean Hsu, Zoltan Sternovsky, Xu Wang, Mihaly Horanyi, Martin Seiss, and Ralf Srama, EGU General Assemble, Vienna, Austria, April 8-13, 2018
11. Simulating the interaction of micrometeoroids with planetary atmospheres in laboratory conditions, Zoltan Sternovsky, Michael DeLuca, Tobin Munsat, Mihaly Horanyi, Diego Janches, and John M. C. Plane, EGU General Assemble, Vienna, Austria, April 8-13, 2018
12. Laboratory study of hyper-velocity impact-driven chemical reactions, impact ionization, and surface evolution in icy surfaces, Zach Ulibarri, Tobin Munsat, Bernd Abel, Richard Dee, Mihaly Horanyi, David James, Sascha Kempf, Zoltan Kupihar, and Zoltan Sternovsky, EGU General Assemble, Vienna, Austria, April 8-13, 2018
13. Dust Astronomy with DESTINY PLUS at 1 AU, Ralf Srama, Masanori Kobayashi, Harald Krüger, Tomoko Arai, Hiroshi Kimura, Mario Tieloff, Jessica Agarwal, Georg Moragas-Klostermeyer, Yanwei Li, Frank Postberg, Nozair Khawaja, Thomas Albin, Jonas Simolka, Heiko Strack, Katherina Fiege, Nicolas Altobelli, Mihaly Horanyi, Sean Hsu, Sascha Kempf, and Zoltan Sternovsky, EGU General Assemble, Vienna, Austria, April 8-13, 2018
14. Exploring the Habitability of Icy Worlds through the Impact Ionization of Icy Dust, Z. Sternovsky, M. DeLuca, Z. Kupihar, B. Abel, S. Kempf, T. Munsat, F. Postberg, Z. Ulibarri, Dusty Visions Workshop, Madrid, Spain, May 30 – July 1.
15. Detecting dust particles in space using antenna instruments, Z. Sternovsky, L. Nouzak, D. Malaspina, M. Horanyi, S. Hsu, F.M. Thayer, S.-Y. Ye, Dusty Visions Workshop, Madrid, Spain, May 30 – June 1.
16. The impact ionization process, Z. Sternovsky, Physics of Dust Impacts: Detection of Cosmic Dust by Spacecraft and its Influence on the Plasma Environment, International Space Science Institute, Bern, Switzerland, June 4 – 8, 2018.
17. Laboratory observations of meteoroid differential ablation, *DeLuca, Michael*, Sternovsky, Zoltan, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018.
18. Asteroids and dust: recent findings and future directions, *Rivkin, Andrew*; Szalay, Jamey; Sternovsky, Zoltan; Cohen, Barbara; Horanyi, Mihaly; Chabot, Nancy
19. Dust detection in space by wave instruments: cassini and juno observations, *Ye, Shengyi*; Kurth, William; Hospodarsky, George; Gurnett, Donald; Sternovsky, Zoltan; Hsu, Hsiang Wen; Horanyi, Mihaly, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018
20. Dust impact detection by antenna and faraday cup instruments in space, *Nouzak, Libor*; Pavlu, Jiri; Hsu, Hsiang Wen; Kociscak, Samuel; Safrankova, Jana; Nemecek, Zdenek; Sternovsky, Zoltan, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018

21. Exploring the chemical diversity of our solar system, *Horanyi, Mihaly; Kempf, Sascha; Pokorny, Petr; Poppe, Andrew; Castillo-Rogez, Julie; Turner, Neal; Balint, Tibor; Srama, Ralf; Szalay, Jamey; Sternovsky, Zoltan*, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018
22. On the detectability of organics in hypervelocity impact ice spectra, *Ulibarri, Zachary; Munsat, Tobin; Abel, Bernd; Dee, Richard; James, David; Kempf, Sascha; Kupihar, Zoltan; Sternovsky, Zoltan*, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018
23. Exploring the habitability of ocean worlds through impact ionization of icy material – development of an icy dust accelerator, *Sternovsky, Zoltan; Kupihar, Zoltan; Abel, Bernd; Kempf, Sascha; Munsat, Tobin; Postberg, Frank; Ulibarri, Zachary*, COSPAR 42nd Assembly, July 14 – 22, Pasadena, CA, 2018
24. Exploring the Habitability of Icy Worlds Through Impact Ionization Mass Spectroscopy of Icy Dust Particles, *Sternovsky, Z.; DeLuca, M.; Kupihar, Z.; Abel, B.; Kempf, S.; Munsat, T.; Postberg, F.; Ulibarri, Z.*, Experimental Analysis of the Outer Solar System Workshop, 15-16 August, 2018, Fayetteville, AR.
25. Generation and Detectability of Organic Compounds and CO₂ from Hypervelocity Dust Impacts Into Icy Surfaces in the Lab, *T Munsat, Z Ulibarri, B Abel, R Dee, D James, S Kempf, Z Kupihar, Z Sternovsky*, Experimental Analysis of the Outer Solar System Workshop, 15-16 August, 2018, Fayetteville, AR.
26. In-Situ Dust Measurements onboard an Interstellar Probe, *J. R. Szalay, M. Horányi, Z. Sternovsky*, Interstellar Probe Exploration Workshop, Oct. 10-12, 2018, New York City, NY.
27. Development of a Reflectron Time-of-Flight Mass Spectrometer and Icy Dust Accelerator to Study Icy Impacts, *DeLuca M., Sternovsky Z., Munsat T., Ulibarri Z.*, Europa Deep Dive 2: Composition Workshop, Oct. 9-11, 2018, LPI Houston, TX.
28. On the Genesis and Detectability of Organic Chemistry in Hypervelocity Impact Ice Spectra, *Ulibarri Z., Munsat T., Abel B., Dee R., Gudipati M., Horanyi M., James D., Kempf S., Kupihar Z., Sternovsky Z.*, Europa Deep Dive 2: Composition Workshop, Oct. 9-11, 2018, LPI Houston, TX.
29. Dust instrument development and calibration measurement activities at the University of Colorado, *Z. Sternovsky, M. Horányi, S. Kempf*, Destiny+ Workshop, Göttingen, Germany, Nov. 5 – 7, 2018
30. Impact ejecta and gardening in the lunar polar regions, *J. Szalay, P. Pokorny, Z. Sternovsky, Z. Kupihar, A. Poppe*, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
31. On the genesis and detectability of organic chemistry in hypervelocity impact ice spectra, *Z. Ulibarri, T. Munsat, B. Abel, R. Dee, M. Horanyi, D. James, S. Kempf, Z. Kupihar, and Z. Sternovsky*, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
32. Dust impact detection by Cassini's Langmuir Probe, *Austin Killman, Sean Hsu, Zoltan Sternovsky, Jan-Erik Wahlund and Michiko W Morooka*, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
33. Dust Detection in Space by Wave Instruments, *Shengyi Ye, William S Kurth, George B Hospodarsky, Ali H Sulaiman, Masafumi Imai, Ann M Persoon, Donald A Gurnett, Sean Hsu, Sascha Kempf, Zoltan Sternovsky, Mihaly Horanyi, Martin Seiss, Ralf*

- Srama, David Pisa, Libor Nouzak, Jakub Vaverka, Arnaud Zaslavsky and Ingrid Mann, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
34. Ablation of Micrometeoroids Simulated in the Laboratory, Michael DeLuca, Zoltan Sternovsky and Tobin Munsat, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
 35. Using Dust Shed from Asteroids as Microsamples to Link Remote Measurements with Meteorite Classes, Barbara A Cohen, Andrew Rivkin, Jamey R Szalay, Jacob A Richardson, Rachel L Klima, Carolyn M Ernst, Nancy L Chabot, Zoltan Sternovsky and Mihaly Horanyi, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.
 36. Refining the Mechanisms of Dust Detection by Antenna Instruments, Zoltan Sternovsky, Libor Nouzak, Ming-Hsueh Shen, David Malaspina, Mihaly Horanyi, Sean Hsu, and Shengyi Ye, AGU Fall Meeting, Washington, DC, 10-14, Dec. 2018.

RESEARCH AND FUNDING

Spaceflight programs

LADEE/LDEX – Instrument scientist for the *Lunar Dust Experiment* instrument on the *Lunar Atmosphere and Dust Environment Explorer*. Launched in 2013. Completed.

Europa Clipper/SUDA – Instrument scientist for the *Surface Dust Analyzer* instrument on the *Europa Clipper* mission. Anticipated launch date in mid 2024.

IMPA/IDEX – Co-I and Instrument scientist for the *Interstellar Dust Experiment* instrument on the *Europa Clipper* mission. Anticipated launch date in mid 2024.

Other research/scholarly work activities

- Member of ISSI proposal development team (ISSI = International Space Science Institute). Proposal title: The observation of cosmic dust through hypervelocity impacts on spacecraft in various space environments (2017-18)

Pending proposals, proposals in development

Agency	Title	Start	End	Role	Commitment	Total
NASA SIMPLEx	TBD					
NASA-SBIR	Electrostatic Roller	4/1/2021	9/20/2021	Inst. PI	0.24 mo/y	\$20k

Current and past funding

Agency	Title	Start	End	Role	Commitment	Total
NASA-SSERVI	Institute for Modeling Plasmas, Atmospheres, and	9/1/2019	8/31/2024	Co-	1 mo/y	\$3,500,000

CAN-3	Cosmic Dust (IMPACT)			PI		
NASA-DALI	Electrostatic Dust Analyzer (EDA) for Exploring Dust Transport Processes on the Lunar Surface (PI: X. Wang, CU)	04/08/19	04/07/22	Co-PI	1 mo/y	\$2,993,477
NSF-Aeronomy	Improved Meteoroid Characterization through Laboratory Experiments, Modeling, and Ground-based Observations (PI: R. Marshall, CU)	9/1/2018	8/31/2022	Col	0.5 mo/y	\$645,134
NASA-IMAP	Interstellar Mapping and Acceleration Probe: IMAP (PI: D. McComas, Princeton Univ.)	2018	2026	Col	TBD	\$TBD
NASA-CDAP	Understanding dust dynamics in Saturn's E-ring using CDAR/PWS measurements and laboratory experiments (PI: M. Horanyi, CU)	1/1/2017	12/31/2019	Co-PI	0.75 mo/y	\$455,593
NASA-EUROPA	Surface Dust Analyzer (SUDA)	8/1/15	2034	Co-PI, IS	~3 mo/y	\$38,783,000
NSF Aeronomy	Experimental investigation of micrometeoroid ablation (supplementing the H-TIDeS grant below, \$105k total)	8/1/15	7/31/18	PI	0.25 mo/y	\$30,000
NASA-H-TIDeS	Experimental Investigation of micrometeoroid ablation	2/15/15	2/14/2018	PI	2 mo/y	\$529,044
NASA-NESSF	Nano-Dust Dynamics and Distribution in the Inner Heliosphere (Leela O'Brien, PhD student)	9/1/14	8/31/17	PI	0 mo/y	\$90,00
NASA-SSERVI	Institute for Modeling Plasma, Atmospheres, and Cosmic Dust (IMPACT)	10/1/13	9/30/2018	Col	1 mo/y	\$6,208,968
NASA-MatISSE	High-performance in-situ dust analyzer	5/1/2013	4/30/2016	PI	3 mo/y	\$2,893,124
NASA-ICEE	Maturing the Surface Dust Analyzer (SUDA) for Europa Exploration	9/1/13	8/31/14	Col IS	2 mo/y	\$891,767
NASA-SHP	Laboratory investigation of dust impacts on antennas in space	11/1/12	10/30/15	PI	1 mo/y	\$406,242
NASA-SHP	Nano-dust analyzer	10/1/10	9/30/13	Col	1 mo/y	\$446,068
NASA-Helio	Charge and Mass of Meteoric Smoke Particles (CHAMPS)	4/1/10	3/31/13	Col IS	1.5 mo/y	\$798,969
NASA-NLSI	Colorado Center for Lunar and Atmospheric Studies (CCLDAS)	4/1/09	3/31/13	Col	2.0 mo/y	\$4,937,000
NASA-SALMON	Lunar Dust Experiment (LDEX)	3/1/09	6/16/12	Col, IS	6 mo/y	\$6,190,226
NASA-LASER	Lunar Dust Transport	6/1/08	5/31/12	Col	1.0 mo/y	\$608,165
NASA-PIDDP	Dust Telescope	6/1/08	5/31/10	Col	4.0 mo/y	\$465,000

NASA-DDAP	Chemical compositions measurements of cosmic materials using in-situ instrumentations	4/1/08	3/31/11	PI	3.0 mo/y	\$415,000
NASA-PIDDP	Electrostatic Lunar Dust Analyzer	6/1/08	5/31/10	Col	4.0 mo/y	\$464,982
NASA-IES	Dusty plasma issues for surfaces in space	4/1/06	3/31/10	Col	3.0 mo/y	\$680,000
Total as PI only (last updated in 2016)						\$4,290,907

(IS = Instrument scientist)

Large proposal efforts (not selected)

Agency	Title	Start	End	Role	Commitment	Total
NASA-Discovery	Fragments from the Origins of the Solar System and our Interstellar Locale (FOSSIL)	2019		Co-PI, IS		\$>400M
NASA-Discovery	Multi-Asteroid eNcounter Tour with Imaging and Spectroscopy (MANTIS)	2019		Inst. PI		\$>15M
NASA-Disc14	Mian-belt Asteroid and NEO Tour with Imaging Spectroscopy (MANTIS)	2015	2025	PI	6 mo/y	~\$18M for CU
NASA-Disc14	Phobos and Deimos & Mars Environment (PADME)	2015	~2025	IS		~\$5M for CU
NASA-SMEX	ICARUS - Exploring the impact of heliospheric dust on the evolution of the solar wind	05/2017	06/2025	Col		\$161,884,323

TEACHING

Courses taught

Semester	Course
Spring 2010	ASEN 3300, Aerospace Electronics and Communications
Spring 2011	ASEN 3300, Aerospace Electronics and Communications
Fall 2011	ASTR/GEOL/ATOC 5835, Seminar, Spacecraft Instrumentation (with M. Horanyi)
Spring 2012	ASEN 3300, Aerospace Electronics and Communications
Spring 2013	ASEN 3300, Aerospace Electronics and Communications
Spring 2014	ASEN 6519, Special Topics – Space Instrumentation
Spring, 2015	ASEN3300, Aerospace Electronics and Communications
Spring, 2016	ASEN3300, Aerospace Electronics and Communications
Fall, 2017	ASEN4018, Senior Project
Spring, 2018	ASNE4028, Senior Project ASEN3300, Aerospace Electronics and Communications
Fall, 2018	ASEN6050, Space Instrumentation
Fall, 2019	ASEN3300, Aerospace Electronics and Communications ASEN4018, Senior Project
Spring, 2020	ASEN 4028, Senior Project
Fall, 2020	ASEN 6050, Space Instrumentation

Mentoring PhD students

Jianfeng Xie – Trajectory Measurements of Cosmic Dust Particles, PhD in 2012.

Leela O'Brien – The Nano Dust Analyzer for the Detection and Analysis of Nanometer-Sized Particles from the Inner Heliosphere, PhD in 2017.

Alex Barrie – An Analysis of Scientific Data Quality for the Fast Plasma Investigation of the MMS Mission, PhD in 2018.

Michael DeLuca – Experiments on Micrometeoroid Ablation in Planetary Atmospheres, PhD, April 2020.

Mitchell Shen – TBD, expected graduation in 2021

Bill Goode – TBD, expected graduation in 2022

Other mentored graduate students

Student name	Start and end date	Projects / Notes
Jason Farmer (MS, AES)	5/2010 – 12/2010	Developed and built instruments for a sounding rocket
Peter Klein (MS, AES)	1/2011 – 5/2011	Developed and built the electronics for a sounding rocket instrument
Tim Beatty (MS, AES)	5/2011 – 8/2011	Summer project of developing advanced electronics for a PVDF dust detector
Steve Kapturowski (PhD, AES)	8/2011 – 3/2012	Performance simulation and optimization of the Nanodust Analyzer instrument
Andrew Gemer (MS, Mech. E.)	8/2011 – 5/2012	Study design of the dust detector for the ESA Lunar Lander
Jonas Simolka, Stuttgart University, Germany	1/2014 – 9/2014	Visiting Scholar from University of Stuttgart. Laboratory investigation of meteoric ablation
Georg Meyer, Stuttgart University, Germany	5/2014 – 2/2015	Visiting scholar from University of Stuttgart. Laboratory simulation of dust impacts on spacecraft and E-field measurements.
Jessy W. Lopes Barreto, Tech. Univ. Delft, Holland	8/2015 – 11/2015	Visiting scholar from Technical University, Delft, The Netherlands.
Libor Nouzak, Charles University, Czechia	7/2017 – 10/2016, 9/2017 – 12/2017, 6/2018 – 9/2018	Visiting scholar from Charles University, Prague, Czech Rep. Lab modeling of RPWS/Cassini
Maryam (Aniya) Khalili, Stuttgart University, Germany	7/2016 – 1/2017	Visiting scholar from the Univ. of Stuttgart, Germany. Dust impact detector evaluation.
Mathijs van de Poel, Tech. Univ. Delft, Holland	3/2017 – 6/2017	Visiting scholar. Development of an electrospray source.
Sean Pepper, Tech. Univ. Delft, Holland	6/2017 – 9/2017	Visiting scholar. Design of an icy dust accelerator
Javier R. Rocha (PhD, AES)	8/2014 - 2017	MS degree in 2017
Jules Reichert, Tech. Univ. Delft, Holland	9/2018 – 12/2018	Visiting scholar. Development of a high dynamic range ion detector for cosmic dust mass analysis applications.

Samuel Kočiščák

8/2019-10/2019

Visiting scholar. Analysis of dust impact accelerator data for determining the temperatures of impact plasmas.

Mentored undergraduate students

Student name/department	Start and end date	Projects / Notes
Alexander (Zeke) Taylor	Summer 2019	REU student. Experimental investigation of impact charge yields from Ag and Au target materials.
Austin Killman	Summer of 2018	REU student. Data analysis of the Langmuir probe measurements from the Cassini mission
Evin O'Shea	Summer of 2017	Data analysis and modeling for STEREO dust detections. REU student.
Liz Bernhardt	June 2016 -	Reflectron TOF manufacturing for JPL.
Ted Thayer	November 2015 – May 2016	STEREO antenna dust impact signal investigations in the laboratory
Justin Ratliffe-Francoeur Caitlin Roe (high school students)	June 2015 – August 2015	Langmuir probe sweeping circuit using the Arduino Due microcontroller (summer project for high school students)
Ethan Williams	1/2014 -	Refinement of the ion optics of the LAMA cosmic dust analyzer instrument
Mark Coffmann / AES	5/2011 – 5/2012	Various mechanical designs and assemblies in the dust lab.
Chris Warren / AES	5/2011 – 6/2012	Various mechanical designs and assemblies in the dust lab.
Chris LaPanse / AES	5/2010 – 12/2010	Development of a Langmuir probe model for the lunar surface
Huy Le / AES	2009 – 5/2012	Development of the Dust Trajectory Sensor instrument electronics and lab testing
Nicole Duncan / Eng. Phys	2008 – 6/2010	Development of the Electrostatic Lunar Dust Analyzer instrument electronics and lab testing

Andrew Gerner / AES	2009 – 5/2010	Mechanical design of the Dust Trajectory Sensor Instrument
Jeremy Salter	2009 – 5/2010	General lab help

Supervising professionals

Name	Position	Start and end dates
Keith Drake	Professional Research Assistant	7/2008 - 2013
Dr. Andrew Collette	Research scientist II, LASP	7/2010 – 2015
Dr. Jon Hillier	Research scientist (short term)	8/2011 – 10/2011
Andrew Gerner	Research Assistant (short term)	5/2010 – 11/2012
Frederick Thayer	Research Assistant (short term)	1/2016 – 9/2016
Frederick Thayer	Research Assistant (short term)	5/2018 – 1/2019

Thesis committees and examinations (since 2019)

2020:

PhD thesis defense committee lead, Michael DeLuca (AES), March 2020
Honors thesis committee, Noah Hood (Physics), April, 2020
Comprehensive examination committee, Li Hsia Yeo (Physics), April, 2020
Comprehensive examination committee, Edwin Bernardoni (Physics), April, 2020
Comprehensive examination committee, Kieran Wilson (AES), May 2020
PhD thesis defense committee, Jordan H. Maxwell (AES), July 2020
Comps III examination committee, Zachary E. Ulibarri (Phys), Dec. 2020

2019:

Preliminary examination committee, Carolina Pena (AES), Sept. 2019
Preliminary examination committee, Bill Goode (AES), Sept. 2019
Preliminary examination committee, Mitchell Shen (AES), Sept. 2019
Comprehensive examination committee, Kristin Nichols, (AES), Sept 2019
Comprehensive examination committee, Jordan Maxwell, (AES), Sept 2019
Comprehensive examination committee, Miles Bengston (AES), Nov 2019

Visiting Scholars:

Hosted Prof. Åshild Fredricksen, who was on a sabbatical leave from her home institute, the Arctic University of Norway. Collaborated on a research project investigating the parameters of dust impact plasma.

SERVICE

National and international

- Co-Convener, AGU Fall Meeting 2019, Impacts of Cosmic Dust in Planetary Atmospheres
- Co-Convener , C5.2/D4.2 Dusty Plasmas and Dust-Plasma Processes in Space, 42nd Assembly COSPAR 2018
- Co-Convener, Impacts of cosmic dust in the terrestrial and other planetary atmospheres, EGU, Vienna, 2016, 2017
- **Program Committee Member**, Annual Meeting of the American Physical Society Division of Plasma Physics (APS DPP) 2013, November 11-15, 2013, Denver, Colorado.
- Session Convener (co-organizer), AGU Fall Meeting, 2012, SA007 - Layers of Nanoparticles in the Mesopause Region: Their Physics and Causes of Long-Term Change
- Session Convener (co-organizer), AGU Fall Meeting, 2011, P28 - Plasma Interactions With Airless Bodies
- Session Chair, AGU Fall Meeting, 2011, P43 Plasma Interactions with Airless Bodies
- Session Chair, AGU Fall Meeting, 2011, P42 Extraterrestrial Dust: Laboratory Analysis of Mission-Returned Samples and Hypervelocity Dust Impacts
- **Senior editor**, IEEE Transactions on Plasma Science (2013-2016)
- External reviewer for various NASA ROSES research programs
- **Panelist**, various NASA ROSES or other research programs (2012, 2013, 2014, 2018)
- **Panel chair**, NASA ROSES research program (2015, 2015, 2017)
- **Main organizer**, 12th Workshop on the Physics of Dusty Plasmas, May 18-20, 2009, Boulder, CO.
- **Guest editor**, IEEE Transactions on Plasma Science, Special Issue on the Physics of Dusty Plasmas, 2009-2010.
- **Member**, Advisory Panel of Physica Scripta (2018 -)
- **Reviews in 2020:**
 - **Proposal review** – Scientific Council of LE STUDIUM, France. Proposal review by invitation, April 2020

- **Manuscript review** – Rev. Sci. Instrum., May 2020
- **Manuscript review** – ApJ Lett., May 2020
- **Proposal review** – NASA PSI-F program, May 2020
- **Proposal review** – LASP Internal Research Development proposals, June 2020
- **Proposal review** – Deutsche Forschungsgemeinschaft (German Research Foundation). Proposal review by invitation. June 2020.
- **Red Team Review** – Jet Propulsion Laboratory, external mission proposal review by invitation. June 2020.
- **Proposal review** – ‘Honey, I Shrunk the NASA Payload Challenge’, Jet Propulsion Laboratory, June 2020.
- **Manuscript review** – Annales Geophys., June 2020
- **Proposal Review Panelist**, NASA ROSES program, October 2020

University of Colorado / AES Service / LASP Service

- Presenter, Engineering Sampler (Oct. 29, 2011)
- Member, Graduate Committee, AES (2011 - 2014)
- Member, Undergraduate Committee, AES (2009 - 2011)
- Member, Space allocation committee, LASP (in 2011)
- Reviewer, Beverly Sears Graduate Student Grants (2011, 2012, 2013, 2014, 2015, 2016, 2017)
- Member, Proposal Development Committee at LASP, reviewer of IRD proposals (2007 -)
- Participation in the “Be a CU student for a Day” program (2011, 2012)
- Member, Faculty research panel for the Engineering Honors Program (2014)
- Research Associate Evaluation committee, LASP (2015)
- Tenure-track Faculty Evaluation committee, LASP (2016)
- Promotion committee, LASP (2017)
- Primary Unit Evaluation Committee (PUEC, 2018)
- AES Strategic vision committee (AES, 2019)
- Reappointment committee – research faculty (AES, 2019)

Service in 2020

- Reappointment committee – research faculty (AES, 2020)
- Faculty search committee (LASP, 2019-20)
- Graduate Committee - Focus Area Lead (AES, 20-21)
- **Proposal review** – LASP Internal Research Development proposals, June 2020
- Member, Proposal Development Committee at LASP (2020)
- AES Strategic vision committee (AES, 2020)
- Post-Tenure Review Committee (AES, 22-21)
- Reappointment Committee (AES, 20-21)