Anton Ivanovich Ermakov

Assistant Professor of Aeronautics and Astronautics, Stanford University

Work address: 496 Lomita Mall, Stanford, CA, 94305

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Research Interests

Planetary Geophysics, Geodesy, Geodynamics, Normal Mode Seismology, Celestial Mechanics

I am interested in the formation and evolution of the Solar System bodies and the ways we can constrain planetary interiors by geophysical measurements.

Education

2011-2016 MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MA, USA
Degree: Doctor of Philosophy in Planetary Science, awarded in February 2017
Department: Earth, Atmospheric and Planetary Sciences.
Advisor: Dr. Maria T. Zuber
Thesis: Geophysical Investigation of Vesta, Ceres and the Moon using gravity and topography data

2005-2010 MOSCOW STATE UNIVERSITY OF GEODESY AND CARTOGRAPHY, MOSCOW, RUSSIA
Degree: Engineer in Space Geodesy (red diploma)
Department: Geodesy
Advisor Dr. Igor I. Krasnorylov
Thesis: Using GNSS for satellite navigation

Academic Positions

2024– Assistant Professor of Aeronautics and Astronautics, Department of Aeronautics and Astronaitics, Stanford University

2021–2023 Assistant Research Scientist, Space Sciences Laboratory, University of California, Berkeley

2019–2021 Post-doctoral Researcher at the University of California, Berkeley.

2016–2019 Post-doctoral Scholar at the Jet Propulsion Laboratory, California Institute of Technology

2011–2016 Research Assistant, Department of the Earth, Atmospheric and Planetary Sciences at the Massachusetts Institute of Technology.

2005–2010 Research Assistant at the Moscow State University of Geodesy and Cartography.

Work experience

2009 Hydrographer at PGS-Khazar. Navigation of seismic vessels with DGPS in the Caspian Sea, preprocessing of seismic survey.

2008 Geodesist at Stroy-Decor, Moscow, Russia. Geodetic control of the Vnukovo-3 airport terminal construction.

2007 Geodesist at Geometer-Center, Moscow, Russia. Topographic survey, monitoring of structure deformations.

Funded research grants

2022-2025 Juno Mission Participating Scientist: "Jupiter's dynamic tides non-perturbatively"

2020-2023 Science-PI of a NASA grant 19-DDAP19_2-0021: "Mapping Mercury's lithospheric thickness"

2019-2021 Science-PI of a NASA grant 18-DDAP18_2-0009: "Constraining Ceres' subsurface structure at geological landmarks using the Dawn gravity and shape data"

2019-2022 Co-I of a NASA grant 18-SSW18-239: "Thermal tidal tomography of the Venus atmosphere"

2019-2020 Collaborator on a NASA grant 18-PMCS18-0051: "Assessing Dwarf Planet Ceres' Past and Present Habitability Potential"

Research experience

2023- LUMIO mission (European Space Agency), member of the Science Team.

2021- Juno Mission Participating Scientist

2011-2018 Dawn Science Team Member

2017 Gravity anomaly mapping at the Brushy Creek purported impact feature in Louisiana (with Dr. Peter B. James).

2011-2016 GRAIL and LOLA science teams on data analysis and calibration.

2014 JPL Visiting Student Researcher Program, Solar System Dynamics Group. Analysis of the line-of-sight accelerations from GRAIL.

2014 Surface photometry of the nearby galaxies under supervision of Dr. Deidre Hunter at the Lowell Observatory.

Research Publications

[1] Brown, J.T., Zhang, Z., Bolton, S., Bonnefoy, L.E., **Ermakov, A.I.**, Feng, J., Hartogh, P., Levin, S., Misra, S., Siegler, M, and Stevenson, S. Microwave observations of Ganymede' sub-surface ice part I: Ice temperature and structure. *Journal of Geophysical Research: Planets*, 2023.

[2] **Ermakov, A.I.**, Akiba, R., Gomez Casajus, L., Zannoni, M., Keane, J.T., Stevenson, D., Buccino, D.R., Durante, D., Parisi, M., Park, R.S, Tortora, P., and Bolton, S.J. Ganymede's internal strucutre after Juno and before JUICE. *in preparation for Planetary Science Journal*, 2022.

[3] Gomez Casajus, L., **Ermakov, A.I.**, Zannoni, M., Keane, J.T., Stevenson, D., Buccino, D.R., Durante, D., Parisi, M., Park, R.S, Tortora, P., and Bolton, S.J. The gravity field of Ganymede after the Juno's Extended Mission. *Geophysical Research Letters*, page e2022GL099475, 2022.

[4] **Ermakov, A.I.** and Raymond, C.A. Geophysics of Vesta and Ceres. *Vesta and Ceres. Insights from the Dawn Mission for the Origin of the Solar System*, page 173, 2022.

[5] Castillo-Rogez, J., Neveu, M., Vinogradoff, V., Miller, M.E., Sori, M.M., Tosi, F., Schmidt, B., Scully, J.E.C, Melwani Daswani, M., Hughson, K., **Ermakov, A.I.**, et al. Science drivers for the future exploration of Ceres: From Solar System evolution to ocean world science. *The Planetary Science Journal*, 3(3):64, 2022.

[6] Castillo-Rogez, J., Brophy, J., Miller, K., Sori, M.M, Scully, J.E.C, Quick, L., Grimm, R., Zolensky, M., Bland, M., Buczkowski, B., **Ermakov, A.I.**, et al. Concepts for the future exploration of dwarf planet ceres' habitability. *The Planetary Science Journal*, 3(2):41, 2022.

[7] Bolton, S.J, Hansen, C., B. Levin, S.M, Stevenson, D, Zhang, Z, **Ermakov, A.I**, and others. Ganymede's interior, ice shell, geology, and atmosphere: The close flyby with the Juno spacecraft. *In preparation for GRL*, 2022.

[8] Akiba, R., **Ermakov, A.I.**, and Militzer, B. Probing the icy shell structure of ocean worlds with gravity–topography admittance. *The Planetary Science Journal*, 3(3):53, 2022.

[9] **Ermakov, A.I.**, Park, R.S., Roa, J, Castillo-Rogez, J.C., Keane, J.T., Nimmo, F., Kite, E., et al. A recipe for the geophysical exploration of Enceladus. *The Planetary Science Journal*, 2(4):157, 2021.

[10] Hunter, D.A., Elmegreen, B.G., Goldberger, E., Taylor, H., **Ermakov, A.I.**, Herrmann, K.A., S. Oh, Malko, B., Barandi, B., and Jundt, R. Relationships between the stellar, gaseous, and star formation disks in little things dwarf irregular galaxies: Indirect evidence for substantial fractions of dark molecular gas. *The Astronomical Journal*, 161, 2021.

[11] Currie, D., Dell'Agnello, S., Delle Monache, G.O., Behr, B., and **Ermakov, A.I.** Next generation lunar laser retroreflector. In *Annual Meeting of the Lunar Exploration Analysis Group*, volume 1748, page 7042, 2021.

[12] Cartwright, R.J., Beddingfield, C.B., Nordheim, T.A., Elder, C.M., Castillo-Rogez, J.C., Neveu, M., Bramson, A.M., Sori, M.M., Buratti, B.J., Pappalardo, R.T., Roser, J.E., Cohen, I.J., Leonard, E.J., **Ermakov, A.I.**, Showalter, M.R., Grundy, W.M., Turtle, E.P., and Hofstadter, M.D. The science case for spacecraft exploration of the Uranian satellites: Candidate ocean worlds in an ice giant system. *The Planetary Science Journal*, 2(3):120, 2021.

[13] Asmar, S., Preston, R., Vergados, P., Atkinson, D., Andert, T., Ando, H., Ao, C., Armstrong, J., Ashby, N., Barriot, J.-P., and **Ermakov, A.I.**. others. Solar system interiors, atmospheres, and surfaces investigations via radio links: Goals for the next decade. *Bulletin of the AAS, white paper submitted to Planetary Science and Astrobiology Decadal Survey 2023-2032*, 53(4), 2021.

[14] Viswanathan, V., Mazarico, E., Merkowitz, S., Williams, J.G., Turyshev, S.G., Currie, D.G., **Ermakov, A.I.**, Rambaux, N., Fienga, A., Courde, C., et al. Extending science from lunar laser ranging. *arXiv:2008.09584, white paper submitted to Planetary Science and Astrobiology Decadal Survey 2023-2032*, 2020.

[15] Raymond, C.A., **Ermakov, A.I.**, Castillo-Rogez, J.C., Marchi, S., Johnson, B.C., Hesse, M.A., Scully, J.E.C., Buczkowski, D.L., Sizemore, H.G., Schenk, P.M., et al. Impact-driven mobilization of deep crustal brines on dwarf planet Ceres. *Nature Astronomy*, 4(8):741–747, 2020.

[16] Park, R.S., Riedel, J.E., **Ermakov, A.I.**, Roa, J., Castillo-Rogez, J.C., Davies, A.G., McEwen, A.S., and Watkins, M.M. Advanced Pointing Imaging Camera (APIC) for Planetary Science and Mission Opportunities. *Planetary and Space Science*, 194:105095, 2020.

[17] Park, R.S., Konopliv, A.S., **Ermakov, A.I.**, Castillo-Rogez, J.C., Fu, R.R., Hughson, K.H.G., Prettyman, T.H., Raymond, C.A., Scully, J.E.C., Sizemore, H.G., et al. Evidence of non-uniform crust of Ceres from Dawn's high-resolution gravity data. *Nature Astronomy*, 4(8):748–755, 2020.

[18] Konopliv, A.S., Park, R.S., and **Ermakov, A.I.** The Mercury gravity field, orientation, Love number, and ephemeris from the MESSENGER radiometric tracking data. *Icarus*, 335:113386, 2020.

[19] James, P.B., **Ermakov, A.I.**, and Michael, M.M. Requirements for gravity measurements on the anticipated Artemis III mission. *arXiv:2009.03514*, 2020.

[20] Castillo-Rogez, J.C., Neveu, M., Scully, J.E.C., House, C.H., Quick, L.C., Bouquet, A., Miller, K., Bland, M., M. De Sanctis, **Ermakov, A.I.**, et al. Ceres: Astrobiological target and possible ocean world. *Astrobiology*, 20(2):269–291, 2020.

[21] Cartwright, R.J., Beddingfield, C.B., Nordheim, T., Elder, C., Grundy, W., Bramson, A., Sori, M., Pappalardo, R., Neveu, M., Burr, D., **Ermakov, A.I.**, et al. The science case for spacecraft exploration of the uranian satellites. *arXiv preprint arXiv:2007.07284, white paper submitted to Planetary Science and Astrobiology Decadal Survey 2023-2032*, 2020.

[22] Bills, B.G., Navarro, T., Schubert, G., **Ermakov, A.I.**, and Górski, K.M. Gravitational signatures of atmospheric thermal tides on venus. *Icarus*, 340:113568, 2020.

[23] Scully, J.E.C., Russell, C.T., Castillo-Rogez, J.C., Raymond, C.A., and **Ermakov, A.I.** Introduction to the special issue: The formation and evolution of Ceres' Occator crater. *Icarus*, 320:1–6, 2019.

[24] Park, R.S., de Kleer, K., McEwen, A., Bierson, C.J., Davies, A.G., DellaGiustina, D., **Ermakov, A.I.**, Fuller, J., Hamilton, C., Harris, C., et al. Tidal heating: Lessons from Io and the Jovian system (report from the KISS workshop). 2019.

[25] Keane, J.T. and **Ermakov, A.I.** No evidence for true polar wander of Ceres. *Nat. Geosci.*, 12:972–974, 2019.

[26] Castillo-Rogez, J.C., Hesse, M.A., Formisano, M., Sizemore, H., Bland, M.T., **Ermakov, A.I.**, and Fu, R.R. Conditions for the long-term preservation of a deep brine reservoir in Ceres. *Geophysical Research Letters*, 46(4):1963–1972, 2019.

[27] Bland, M.T., Buczkowski, D.L., Sizemore, H.G., **Ermakov, A.I.**, King, S.D., Sori, M.M., Raymond, C.A., Castillo-Rogez, J.C., and Russell, C.T. Dome formation on Ceres by solid-state flow analogous to terrestrial salt tectonics. *Nature Geoscience*, 12(10):797–801, 2019.

[28] Bills, B.G. and **Ermakov, A.I.** Simple models of error spectra for planetary gravitational potentials as obtained from a variety of measurement configurations. *Planetary and Space Science*, page 104744, 2019.

[29] Bills, B.G., Navarro, T., Schubert, G., **Ermakov, A.I.**, and Górski, K.M. Gravitational signatures of atmospheric thermal tides on Venus. *Icarus*, page 113568, 2019.

[30] Williams, D.A., Kneissl, T., Neesemann, A., Mest, S.C., Palomba, E., Platz, T., Nathues, A., Longobardo, A., Scully, J.E.C., **Ermakov, A.I.**, et al. The geology of the Kerwan quadrangle of dwarf planet Ceres: Investigating Ceres' oldest, largest impact basin. *Icarus*, 316:99–113, 2018.

[31] **Ermakov, A.I.**, Park, R.S., and Bills, B.G. Power laws of topography and gravity spectra of the Solar System bodies. *Journal of Geophysical Research: Planets*, 123(8):2038–2064, 2018.

[32] **Ermakov, A.I.**, Kreslavsky, M.A., Scully, J.E.C., Hughson, K.H.G., and Park, R.S. Surface roughness and gravitational slope distributions of Vesta and Ceres. *Journal of Geophysical Research: Planets*, 123, 2018.

[33] J. Scully, Buczkowski, D.L., Neesemann, A., Williams, D.A., Mest, S.C., Raymond, C.A., Nass, A., Hughson, K.H.G., Kneissl, T., Pasckert, J.H., Ruesch, O., Frigeri, A., Marchi, S., Combe, J.-P., Schmedemann, N., Schmidt, B.E., Chilton, H.T., Russell, C.T., Jaumann, R., Preusker, F., Roatsch,

T., Hoffmann, M., Nathues, A., Schaefer, M., and **Ermakov, A.I.** Ceres' Ezinu quadrangle: a heavily cratered region with evidence for localized subsurface water ice and the context of Occator crater. *Icarus*, 316:46–62, 2018.

[34] Park, R.S., Vaughan, A.T., Konopliv, A.S., **Ermakov, A.I.**, Mastrodemos, N., Castillo-Rogez, J.C., Joy, S.P., Nathues, A., Polanskey, C.A., Rayman, M.D., et al. High-resolution shape model of Ceres from stereophotoclinometry using Dawn imaging data. *Icarus*, 319:812–827, 2018.

[35] Konopliv, A.S., Park, R.S., Vaughan, A.T., Bills, B.G., Asmar, S.W., **Ermakov, A.I.**, Rambaux, N., Raymond, C.A., Castillo-Rogez, J.C., Russell, C.T., et al. The Ceres gravity field, spin pole, rotation period and orbit from the dawn radiometric tracking and optical data. *Icarus*, 299:411–429, 2018.

[36] Hughson, K.H.G., Russell, C.T., Williams, D.A., Buczkowski, D.L., Mest, S.C., Pasckert, J.H., Scully, J.E.C., Combe, J.-P., Platz, T., Ruesch, O., Preusker, F., Jaumann, R., Nass, A., Roatsch, T., Nathues, A., Schaefer, M., Schmidt, B.E., Chilton, H.T., **Ermakov, A.I.**, Singh, S., McFadden, L.A., and Raymond, C.A. The Ac-5 (Fejokoo) quadrangle of Ceres: Geologic map and geomorphological evidence for ground ice mediated surface processes. *Icarus*, 316:63–83, 2018.

[37] Bland, M.T., **Ermakov, A.I.**, Raymond, C.A., Williams, D.A., Bowling, T.J., Preusker, F., Park, R.S., Marchi, S., Castillo-Rogez, J.C., Fu, R.R., et al. Morphological indicators of a mascon beneath Ceres' largest crater, Kerwan. *Geophysical Research Letters*, 45(3):1297–1304, 2018.

[38] **Ermakov, A.I.**, Mazarico, E., Schroder, S.E., Carsenty, U., Schorghofer, N., Preusker, F., Raymond, C.A., Russell, C.T., and Zuber, M.T. Ceres's obliquity history and its implications for the permanently shadowed regions. *Geophysical Research Letters*, 44(6):2652–2661, 2017.

[39] **Ermakov, A.I.**, Fu, R.R., Castillo-Rogez, J.C., Raymond, C.A., Park, R.S., Preusker, F., Russell, C.T., Smith, D.E., and Zuber, M.T. Constraints on Ceres' internal structure and evolution from its shape and gravity measured by the Dawn spacecraft. *Journal of Geophysical Research: Planets*, 122(11):2267–2293, 2017.

[40] Sori, M.M., Byrne, S., Bland, M.T., Bramson, A.M., **Ermakov, A.I.**, Hamilton, C.W., Otto, K.A., Ruesch, O., and Russell, C.T. The vanishing cryovolcanoes of Ceres. *Geophysical Research Letters*, 44(3):1243–1250, 2017.

[41] Scully, J.E.C., Buczkowski, D.L., Schmedemann, N., Raymond, C.A., Castillo-Rogez, J.C., King, S.D., Bland, M.T., **Ermakov, A.I.**, O'Brien, D.P., Marchi, S., et al. Evidence for the interior evolution of Ceres from geologic analysis of fractures. *Geophysical Research Letters*, 44(19):9564–9572, 2017.

[42] Landis, M.E., Byrne, S., Schorghofer, N., Schmidt, B.E., Hayne, P.O., Castillo-Rogez, J.C., Sykes, M.V., Combe, J.-P., **Ermakov, A.I.**, Prettyman, T.H., Raymond, C.A., and Russell, C.T. Conditions for sublimating water ice to supply Ceres' exosphere. *Journal of Geophysical Research: Planets*, 2017. 2017JE005335.

[43] Fu, R.R., **Ermakov, A.I.**, Marchi, S., Castillo-Rogez, J.C., Raymond, C.A., Hager, B.H., Zuber, M.T., King, S.D., Bland, M.T., De Sanctis, M.C., et al. The interior structure of Ceres as revealed by surface topography. *Earth and Planetary Science Letters*, 476:153–164, 2017.

[44] Russell, C.T., Raymond, C.A., Ammannito, E., Buczkowski, D.L., De Sanctis, M.C., Hiesinger, H., Jaumann, R., Konopliv, A.S., McSween, H.Y., Nathues, A., **Ermakov, A.I.**, et al. Dawn arrives at Ceres: Exploration of a small, volatile-rich world. *Science*, 353(6303):1008–1010, 2016.

[45] Park, R.S., Konopliv, A.S., Bills, B.G., Rambaux, N., Castillo-Rogez, J.C., Raymond, C.A., Vaughan, A.T., **Ermakov, A.I.**, Zuber, M.T., Fu, R.R., et al. A partially differentiated interior for (1) Ceres deduced from its gravity field and shape. *Nature*, 537(7621):515–517, 2016.

[46] Marchi, S., **Ermakov, A.I.**, Raymond, C.A., Fu, R.R., O'Brien, D.P., Bland, M.T., Ammannito, E., De Sanctis, M.C., Bowling, T., Schenk, P., et al. The missing large impact craters on Ceres. *Nature communications*, 7(1):12257, 2016.

[47] Hiesinger, H., Marchi, S., Schmedemann, N., Schenk, P., Pasckert, J.H., Neesemann, A., O'Brien, D.P., Kneissl, T., **Ermakov, A.I.**, Fu, R.R., et al. Cratering on Ceres: Implications for its crust and evolution. *Science*, 353(6303):aaf4759, 2016.

[48] Buczkowski, D.L., Schmidt, B.E., Williams, D.A., Mest, S.C., Scully, J.E.C., **Ermakov, A.I.**, Preusker, F., Schenk, P., Otto, K.A., Hiesinger, H., et al. The geomorphology of Ceres. *Science*, 353(6303):aaf4332, 2016.

[49] **Ermakov, A.I.**, Zuber, M.T., Smith, D.E., Raymond, C.A., Balmino, G., Fu, R.R., and Ivanov, B.A. Constraints on Vesta's interior structure using gravity and shape models from the Dawn mission. *Icarus*, 240:146–160, 2014.

[50] Konopliv, A.S., Asmar, S.W., Park, R.S., Bills, B.G., Centinello, F., Chamberlin, A.B., **Ermakov, A.I.**, Gaskell, R.W., Rambaux, N., Raymond, C.A., et al. The Vesta gravity field, spin pole and rotation period, landmark positions, and ephemeris from the Dawn tracking and optical data. *Icarus*, 240:103–117, 2014.

[51] Fu, R.R., Hager, B.H., **Ermakov, A.I.**, and Zuber, M.T. Efficient early global relaxation of asteroid Vesta. *Icarus*, 240:133–145, 2014.

[52] Blewett, D.T., Buczkowski, D.L., Ruesch, O., Scully, J.E.C., O'Brien, D.P., Gaskell, R., Roatsch, T., Bowling, T.J., **Ermakov, A.I.**, Hiesinger, H., et al. Vesta's north pole quadrangle Av-1 (Albana): Geologic map and the nature of the south polar basin antipodes. *Icarus*, 244:13–22, 2014.

[53] **Ermakov, A.I.** Using GNSS for satellite navigation. *Journal of Geodesy and Aerophotosurveying*, 3:49–51, 2010.

[54] **Ermakov, A.I.** The effect of Mars on the orbit evolution of the near-earth asteroids. *Journal of Geodesy and Aerophotosurveying*, 3:47–49, 2010.

Conferences*

**only first-author presentations*

2023 Ermakov, A.I., Akiba, R., Gomez Casajus, L., Zannoni, M., Keane, J.T., Stevenson, D.J., Buccino, D., Durante, D., Parisi, M., S Park, P., Tortora, P., Bolton, S.J., Ganymede's internal structure after Juno and before JUICE. *European Geosciences Union*, Vienna, Austria.

2022 Ermakov, A.I., Akiba, R., Gomez Casajus, L., Zannoni, M., Keane, J.T., Stevenson, D.J., Buccino, D., Durante, D., Parisi, M., S Park, P., Tortora, P., Bolton, S.J., Ganymede's internal structure after Juno and before JUICE. *American Geophysical Union Fall Meeting*, Chicago, USA.

2022 Ermakov, A.I., Bills, B.G., Navarro, T., Schubert, G., Gorski, K. Harmonic Analysis of Venus' Thermal Tide. *Lunar and Planetary Science Conference,* The Woodlands, TX, USA.

2022 Ermakov, A.I., Johnson, B.C., Park, R.S., Castillo-Rogez, J.C. Formation of Ceres' Mascons. *Lunar and Planetary Science Conference,* The Woodlands, TX, USA.

2021 Ermakov, A.I., Shi, J., de Hoop, M.V., Militzer, B., Faucher, F. Non-perturbative computation of normal modes for rotating gas giant planets. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2020 Ermakov, A.I., Castillo-Rogez, J.C., Park, R.S., Sotin, S., Lazio, J., Howell, S.M., Keane, J.T., Hemingway, D.J., Nimmo, F., Kite, E., Viswanathan, V., Steinbrügge, G., Tobie, G., Lainey, V. A recipe for geophysical investigation of Enceladus. *AAS/DPS Virtual Meeting.*

2019 Ermakov, A.I., Park, R.S., Fu, R.R., Raymond, C.A., Castillo-Rogez, J.C., Russell, C.T. Ceres' interior from Dawn's second extended mission gravity mapping. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2019 Ermakov, A.I., Park, R.S., Raymond, C.A., Castillo-Rogez, J.C., Russell, C.T. Using effective density spectrum to constrain crustal density profile of Vesta and Ceres. *Lunar and Planetary Science Conference,* The Woodlands, TX, USA.

2018 Ermakov, A.I., Bills, B.G., Navarro, T., Schubert, G., Gorski, K. Decomposition of the Venus time-variable gravity due to the atmospheric mass motion as inferred from global circulation models. *American Geophysical Union Fall Meeting*, Washington D.C., USA.

2018 Ermakov, A.I., Park, R.S., Raymond, C.A., Castillo-Rogez, J.C. Russell, C.T. Roughness of Ceres from high-resolution shape models. *42nd COSPAR Assembly*, Pasadena, CA, USA.

2017 Ermakov, A.I., Park, R.S., Raymond, C.A., Zuber, M.T., Russell, C.T., R. R. Fu, R.R. Insights into Vesta and Ceres internal structures from their topography. Invited talk at the *American Geophysical Union Fall Meeting*, New Orleans, LA, USA.

2017 Ermakov, A.I., Park, R.S., Bills, B.G., Power laws of gravity and topography of Solar System bodies. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2017 Ermakov, A.I., Fu, R.R., Zuber, M.T., Smith, D.E., Park, R.S., Raymond, C.A., Russell, C.T. Comparative study of Vesta and Ceres using the Dawn gravity and shape data. *Asteroids, Comets, Meteors Meeting*, Montevideo, Uruguay.

2017 Ermakov, A.I., Fu, R.R., Zuber, M.T., Smith, D.E., Park, R.S., Raymond, C.A., Russell, C.T. Regional analysis of Ceres gravity anomalies. *Lunar and Planetary Science Conference,* The Woodlands, TX, USA.

2016 Ermakov, A.I., Mazarico, E., Schröder, S., Carsenty, U., Schorghofer, N., Raymond, C.A., Zuber, M.T., Smith, D.E., Russell, C.T. Ceres' obliquity history: Implications for permanently shadowed regions. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2016 Ermakov, A.I., Fu, R.R., Zuber, M.T., Smith, D.E., Park, R.S., Raymond, C.A., Russell, C.T. Evaluation of Ceres' compensation state. *Lunar and Planetary Science Conference*, The Woodlands, TX, USA.

2015 Ermakov, A.I., Fu, R.R., Zuber, M.T., Smith, D.E., Park, R.S., Raymond, C.A., Russell, C.T. Constraints on Ceres internal structure and thermal evolution from the Dawn shape and gravity data. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2015 Ermakov, A.I. Zuber, M.T., Smith, D.E., Fu, R.R., Raymond, C.A., Russell, C.T. Constraints on Ceres' internal structure from the Dawn shape and gravity data. *6th Moscow Solar System Symposium*, Moscow, Russia.

2015 Ermakov, A.I., Zuber, M.T., Smith, D.E., Park, R.S., Konopliv, A.S., Neumann, G.A. Evaluation of degree-1200 GRAIL gravity models using line-of-sight data and spectral analysis. *Lunar and Planetary Science Conference*, The Woodlands, TX, USA.

2014 Ermakov, A.I., Zuber, M.T. Smith, D.E., Raymond, C.A., Preusker, F., Gaskell R. Comparison of SPC and SPG shape models of Vesta. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2014 Ermakov, A.I., Zuber, M.T., Smith, D.E., Raymond, C.A., Fu, R.R., Toplis, M.J. Modeling Vesta's internal structure with Dawn gravity and shape models. *Vesta in the Light of Dawn workshop: First Exploration of a Protoplanet in the Asteroid Belt,* Houston, TX, USA.

2013 Ermakov, A.I., Zuber, M.T., Smith, D.E., Raymond, C.A., Fu, R.R., Toplis, M.J. Vesta's interior structure, despinning and reorientation from Dawn. *American Geophysical Union Fall Meeting*, San Francisco, CA, USA.

2012 Ermakov, A.I., Zuber, M.T., Raymond, C.A. Forward modeling of Vesta's interior structure using gravity and shape models from the Dawn mission. *Lunar and Planetary Science Conference*, The Woodlands, TX, USA.

2010 Ermakov, A.I. Gravitational interference of Mars on the evolution of the orbital elements of Near-Earth Objects. *Undergraduate and Postgraduate Student Conference, Moscow, Russia.*

2010 Ermakov, A.I. Estimation of parameters of the Earth's gravitational field using GPS measurements in the GOCE project. *Undergraduate and Postgraduate Student Conference, Moscow, Russia.*

2009 Ermakov, A.I. Bagrov, A. High-precision model of the Earth's gravitational field on the basis of the wavelet theory. *Undergraduate and Postgraduate Student Conference, Moscow, Russia.*

2009 Ermakov, A.I. Statistical distribution of energy released in the impacts with Near-Earth Objects. *Undergraduate and Postgraduate Student Conference, Moscow, Russia.*

2009 Ermakov, A.I. GNSS applications for navigation of satellites. *Undergraduate and Postgraduate Student Conference, Moscow, Russia.*

Invited Talks

2023 Distinguished Speaker at the Michigan State Earth and Environmental Sciences Department Seminar, East Lansing, MI, USA

2023 Invited Speaker for Planetary Science Seminar at Purdue University, West Lafayette, IN, USA

2023 Invited speaker at the Origins and Habitability of Galilean Moons Workshop, Marseille, France

2023 Invited speaker at the Juno Open Team Meeting Workshop Galilean Satellite and Radiation Environment, San Antonio, TX, USA

2023 Invited Speaker for Planetary Science Seminar at Lunar and Planetary Institute, Houston, TX, USA

2023 Invited Speaker for the Solid Earth and Planetary Science seminar at ETH-Zurich, Zurich, Switzerland

2023 Invited Speaker for the planetary session at SAGE/GAGE, Pasadena, CA, USA

2023 CIPS planetary seminar at UC Berkeley, Berkeley, CA, USA

2023 IGPP seminar, Santa Cruz, CA, USA

2022 Stanford geophysics seminar, Stanford, CA, USA

2022 UCLA planetary seminar, Los Angeles, CA, USA

2021 Baylor University Geophysics Seminar, Waco, TX, USA

2020 Berkeley/UCLA planetary science science seminar, Berkeley, CA, USA

2020 Planetary lunch seminar at UC Santa Cruz, Santa Cruz, CA, USA

2019 CIPS planetary seminar at UC Berkeley, Berkeley, CA, USA

2018 UCLA planetary seminar, Los Angeles, CA, USA

2018 The Dix Planetary Science Seminar at Caltech, Pasadena, CA, USA

2017 Invited speaker at the American Geophysical Union Fall Meeting, New Orleans, USA

2017 Invited speaker at the Japan Geoscience Union - American Geophysical Union Joint Meeting, Chiba, Japan

2017 Yuk Yang seminar at Caltech, Pasadena, CA, USA

2016 Research Seminar at the Paris Observatory, Paris, France

2016 SSERVI seminar, Brown University, Providence, RI, USA

2016 Invited talk at the New Hampshire Astronomy Club, Concord, NH, USA

2015 Planetary Informal Lunch Colloquium at MIT, Cambridge, MA, USA

2014 Invited talk at the University of Arizona, Tucson, AZ, USA

2014 Invited talk at the Harvard University, Cambridge, MA, USA

2013 Planetary Informal Lunch Colloquium at MIT, Cambridge, MA, USA

2013 Research talk at the Institute for Space Research, Moscow, Russia

2012 Planetary Informal Lunch Colloquium at MIT, Cambridge, MA, USA

2012 Planetary Informal Lunch Colloquium at MIT, Cambridge, MA, USA

Teaching and Mentorship

2022 Ryu Akiba (UC Berkeley, Applied Math), joint analysis of Ganymede's geophysical data

2022 Aidi Zhang (Lin Fellowship at UCB/SSL), gravity signature of Jupiter's Great Red Spot

2020 Ryu Akiba (UC Berkeley, Applied Math), modeling ice shell structure of ocean worlds

2014-2016 Leading gravimetry lab for the MIT course 12.002 Introduction to Geophysics & Planetary Science

2013-2015 Mentored graduate students Alissa Earle and Zhuchang Zhan

2013 Teaching assistant, MIT course 12.420/12.601 Physics & Chemistry of Solar System taught by Dr. Benjamin Weiss

Honors and Awards

2019 JPL Team Award for the development the Mercury gravity field model

2017 Asteroid 10680 Ermakov

2016 NASA Group Achievement Award to the Dawn Gravity Team

2012 AGU Outstanding Student Paper Award

2006-2010 Moscow Mayor's scholarship for outstanding students

2009 Honorary Diploma from the Director of Russian Federal Agency of Geodesy and Cartography

2009 Honorary Diploma for excellent academic achievements. Moscow State University of Geodesy and Cartography

2008 Honorary Diploma for excellent academic achievements. Moscow State University of Geodesy and Cartography

2007 Honorary Diploma for excellent academic achievements. Moscow State University of Geodesy and Cartography

Service

2022 Organizer of the Bay Area Planetary Science (BAPS) conference

2021 EPSC session convener

2020-2022 Co-lead of Next Generation of Planetary Geodesy KISS workshop, Keck Institute, Caltech.

2020- Co-organizer of Berkeley-UCLA planetary science seminars

2020 DPS Annual Meeting session chair

2018,2020 AGU Fall Meeting session organizer and chair

2017- NASA review panelist, multiple programs

2016 Book chapter review: Enceladus and the Icy Moons of Saturn, The University of Arizona Press

2013- Reviewer for scientific journals: *Icarus, Space Science Reviews, Astronomy and Astrophysics, MAPS*, *Astrophysics and Space Science, Engineering Reports, Journal of Geophysical Research, Geophysical Journal International.*

Affiliations

2012- American Geophysical Union member

2018- COSPAR associate

2020- DPS affiliate member

Skills

Geophysical and geodetic equipment: GNSS receivers and antennas, relative gravimeters, geophones, total stations and levels

Astronomical equipment: telescopes, CCD cameras, spectrographs

Programming languages: C/C++, Matlab, Fortran, Python, Mathematica, Julia

Languages: Russian – native, English – fluent

Hobbies: karting, astrophotography, swimming.