

## Curriculum Vitæ

### Personal data

#### Name and contact details

Natalia Ganushkina

(official last name written in passport as Ganjushkina)

University of Michigan, Department of Climate and Space Sciences and Engineering,  
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#### Second affiliation:

Finnish Meteorological Institute, Space Research and Observation Technologies, Space and Earth observation centre

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#### Current position, employer and start date

- **January 2008-present:** Research Scientist at Finnish Meteorological Institute, Space Research and Observation Technologies, Space and Earth observation centre, Helsinki, Finland.
- **September 2019-present:** Research scientist at University of Michigan, Department of Climate and Space Sciences and Engineering, Ann Arbor, USA.

### Education

#### Degrees, institution, date of graduation

- **Docent (Space Physics)**, University of Helsinki, Helsinki, Finland, April 2010.
- **Ph.D. (Physics and Chemistry of Plasma)**, Moscow State University, Physics Department, Moscow, Russia, September 1997. Thesis title: "Formation of the magnetostatically equilibrium Region 1 field-aligned currents and the dawn-dusk electric field in the Earth's Magnetosphere". Advisors: Prof. B. A. Tverskoy and Dr. E. E. Antonova
- **MS (Physics)**, Moscow State University, Physics Department, Moscow, Russia, January 1994. Diploma title: "Characteristics of the magnetostatic equilibrium processes in the Earth's magnetosphere and the coordinate system for their description", under the supervision of Dr. E. E. Antonova.

#### Language skills

Russian - native,

English - excellent,

Finnish - excellent,

French - good.

#### Previous positions and mobility

#### Previous employments, job title and period

- **Sep 2013-Aug 2019:** associate research scientist, Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, USA
- **May 2009-present:** Assistant Research scientist at University of Michigan, Department of Atmospheric, Oceanic and Space Sciences, Ann Arbor, USA.
- **March 2004-December 2007:** Research Scientist at Finnish Meteorological Institute, Space Research, Helsinki, Finland (organization change).
- **November 2000-February 2004:** Research Scientist at Finnish Meteorological Institute, Geophysical Research, Helsinki, Finland.
- **November, 1998-October 2000:** post doc at Finnish Meteorological Institute, Geophysical Research, Helsinki, Finland.
- **April 1997-November 1998:** Research Scientist at the Laboratory for Theoretical and Applied Problems of Space Physics of Skobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University, Moscow, Russia.
- **January 1994-April 1997:** Graduate Research Assistant at the Laboratory for Theoretical and Applied Problems of Space Physics of Skobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University, Moscow, Russia.
- **September 1989-December 1994:** Undergraduate Research Assistant at the Laboratory for Theoretical and Applied Problems of Space Physics of Skobeltsyn Institute of Nuclear Physics Lomonosov Moscow State University, Moscow, Russia.

#### **International mobility**

- **September – December 2009:** Visiting Professor at CESR (Centre d'Etude Spatial des Rayonnements), Toulouse, France, as Poste Rouge Fellowship.
- **June 2008-April 2009:** Visiting Research Scientist at University of Michigan, Department of Atmospheric, Oceanic and Space Sciences, Ann Arbor, USA.
- **January-March, 2005:** Visiting Scientist at Tokyo Institute of Technology, Department of Earth and Planetary Sciences, Tokyo, Japan.
- **August-September 2003:** Visiting Scientist at Max-Planck Institute for Extraterrestrial Physics, Garching, Germany.
- **August-September 2002:** Visiting Scientist at Max-Planck Institute for Extraterrestrial Physics, Garching, Germany.
- **February - March 2001:** Visiting Scientist at National Institute of Polar Research, Department of Upper Atmosphere Physics, Tokyo, Japan.
- **November 1997-February 1998 and May 1998-September 1998:** Visiting Scientist at Institut d'Aeronomy Spatial de Belgique, Brussels, Belgium
- **May-September 1996:** Visiting Scientist at East-West Space Science Center under supervision of Academician R. Z. Sagdeev, University of Maryland, Maryland, USA.

#### **Teaching experience**

- **March-May 2015:** "Observational Space Physics" lecture course, Code: 53319, 5 credits, March 10, 2015-April 30, 2015 (14 lectures of 2 hours), University of Helsinki, Faculty of Science, Department of Physics, Helsinki, Finland.
- **March-May 2013:** "Observational Space Physics" lecture course, Code: 53776, 5 credits, March 11, 2013-May 2, 2013 (14 lectures of 2 hours), University of Helsinki, Faculty of Science, Department of Physics, Helsinki, Finland.

- **January-April 2011:** Lecturer at graduate course “AOSS 595 - Magnetosphere and Solar Wind”, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan, Ann Arbor, USA.
- **January-April 2009:** Lecturer at graduate course “AOSS 595 - Magnetosphere and Solar Wind”, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan, Ann Arbor, USA.
- **April 2007:** Lecturer at International School of Space Science 2007 Course on Magnetospheric Dynamics 9-15 April 2007, L'Aquila, Italy
- **March-May 2007:** Lecturer at the Department of Physics of the University of Helsinki, Finland, lecture course 'Observational Space Physics'. This course was fully prepared and taught by Dr. Natalia Ganushkina
- **February, 2006:** Lecturer at the Department of Physics of the University of Helsinki, Finland, Research Seminar on Sun-Earth Connections.
- **April 1994-April 1997:** Practical course on Cosmic Rays and Space Physics, at Physics Department Lomonosov Moscow State University, Moscow, Russia.
- **September 1994-May 1995:** Mathematics and Physics at Moscow High school N286.

#### **PhD Thesis supervision**

- Brian Swiger, graduate student at the Department of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, USA. Thesis title: Dynamics of keV electrons in the inner Earth's magnetosphere, expected defense date: May 2022, Co-Advisor (together with Prof. Michael Liemohn).
- John Haiducek, graduate student at the Department of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, USA. Thesis title: Exploring Magnetotail Structure and Dynamics with Magnetohydrodynamic Simulations, defended in May 2018, Co- Advisor (together with Prof. Tamas Gombosi).
- Sidney Ellington, graduate student at the Department of Climate and Space Sciences and Engineering, University of Michigan, Ann Arbor, USA. Thesis title: Ultra-Low Frequency Standing Alfvén Waves: Global Magnetospheric Modeling of Resonant Wave-Wave Interactions, defended in May 2016, Co-Advisor (together with Prof. Mark Moldwin).

#### **PhD thesis examiner**

- External Examiner for PhD for student Homayon Aryan, University of Sheffield, Faculty of Engineering, Department of Automatic Control & System Engineering, Sheffield, UK, defense on December, 2014.
- External Examiner for PhD for student Ivan Pakhotin, University of Sheffield, Faculty of Engineering, Department of Automatic Control & System Engineering, Sheffield, UK, defense on October 16, 2014.
- Member of PhD Committee for Roxanne Katus, University of Michigan, Department of Atmospheric, Oceanic and Space Sciences, Ann Arbor MI, USA, defense on May, 2014.

#### **Supervising/working with undergraduate students**

- Robert Duquette, February 2021-December 2021, Co-Advisor, University of Michigan, College of Engineering, Ann Arbor, USA.
- Erica Morgan, September 2010-May 2011, Co-Advisor (together with Prof. Mark Moldwin), University of Michigan, Department of Atmospheric, Oceanic and Space Sciences, Ann Arbor, USA.
- Amanda Mims, September 2008-May 2009, Co-Advisor, University of Michigan, College of Engineering, Ann Arbor, USA.
- Anna-Stiina Sirvio (master student of Department of Physics of the University of Helsinki, Finland), June-August 2007, Co-Advisor at Finnish Meteorological Institute, Helsinki, Finland, Space Research.
- Jussi Korhonen (master student of Department of Physics of the University of Helsinki, Finland), May-August, 2002, Co-Advisor at Finnish Meteorological Institute, Helsinki, Finland, Geophysical research division.
- Tommi Karhunen (master student of University of Leicester, Leicester, UK), June-September, 2001, Co-Advisor at Finnish Meteorological Institute, Helsinki, Finland, Geophysical research division.

**Supervision of post-doc researchers with primary supervisory role** (trained and mentored, fully supported financially):

- Dr. Stepan Dubyagin, at Finnish Meteorological Institute, Helsinki, Finland, 2011-2014
- Dr. Olga Amariutei, at Finnish Meteorological Institute, Helsinki, Finland, 2011-2014
- Dr. Ilkka Sillanpää, at Finnish Meteorological Institute, Helsinki, Finland, 2015-2017

### **Prizes and awards**

- CLaSP (Department of Climate and Space Sciences and Engineering) Departmental Award, University of Michigan, Ann Arbor, USA, 2018.
- Ted Kennedy Family **Faculty Team Excellence Award** for 2018-2019 as a member of Center of Space Environment Modelling team the College of Engineering, University of Michigan, Ann Arbor, USA.
- M. Reese **Outstanding Research Scientist Award** in the College of Engineering, University of Michigan, Ann Arbor, USA, 2014.
- **Poste Rouge Fellowship** (Visiting Professor) at CESR (Centre d'Etude Spatial des Rayonnements), Toulouse, France, 2009.
- Japan Society for the Promotion of Science (JSPS), **postdoctoral fellowship** award for foreign researchers, 2005.
- **Young scientists award** at Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Moscow, Russia, January 1997.

### **Professional activities and achievements**

#### **Editorial work**

Associate Editor for Journal of Geophysical Research Space Physics, July 2014 – June 2018

Editor for Journal of Geophysical Research Space Physics, July 2018-present

#### **Expert and reviewer tasks**

### **Proposal review panels**

- Expert for European Commission, Research Executive Agency, including Ethics
- Reviewer and panelist for proposals submitted to Swedish National Space Board, May 2016-May 2017
- External reviewer for National Science Foundation in USA, Division of Antarctic Sciences, Geospace Environment Modeling, Magnetospheric Basic Research.
- External reviewer and Panel member at NASA Heliophysics Guest Investigators and Supporting research.

**Service as a reviewer** for peer-reviewed, international scientific journals, including Journal of Geophysical Research, Annales Geophysicae, Geophysical Research Letters, Journal of Atmospheric and Solar-Terrestrial Physics, Surveys in Geophysics, Advances in Space Research etc.

**Providing recommendations** for researchers' promotions and position applications.

### **Positions of trust and memberships in councils, boards, committees, networks, scientific associations, etc.**

- AGU (American Geophysical Union) Publications Committee, member, 2010-2012 term.
- EGU (European Geosciences Union), Science Officer, ST (Solar-Terrestrial Sciences) Division, Magnetospheric Physics, 2009-2017.
- National Representative from Finland in Management Committee of the COST (European Cooperation in the Field of Scientific and technical Research) ES0803 Action "Developing space weather products and services in Europe", 2008 – 2012.

### **Joint efforts and cooperation, e.g., with industry, trade and business life**

Cooperation with SES Astra (Luxemburg), satellite operator, which own and operate a fleet of 51 geostationary satellites, via David Pitchford as a member of steering committee in Seventh Framework Programme of the European Union, Collaborative Project SPA.2010.2.3-1, SPACECAST: "Protecting space assets from high energy particles by developing European dynamic modeling and forecasting capabilities"

### **Participation in/organization of conferences, workshops, etc.**

#### **Organizations of conferences**

- ISSI International Team "Ring current modeling: Uncommon Assumptions and Common Misconceptions", International Space Science Institute, Bern, Switzerland, 2016.
- ISSI International Team "Resolving Current Systems in Geospace", International Space Science Institute, Bern, Switzerland, 2012.
- Member of Scientific Organizing Committee at International Symposium on Recent Observations and Simulations of the Sun-Earth System II, September 11-16, 2011, Borovets, Bulgaria.
- Main organizer of Inner Magnetosphere Coupling workshop, July 28 - August 1, 2008, hotel Korpilampi, Espoo, Finland.

- Chair of LOC of 7th International Conference on Substorms, 21-27 March 2004, Levi, Finland.
- Member of LOC of Chapman Conference on Physics and Modelling of the Inner Magnetosphere, 25-29 August 2003, Helsinki, Finland.
- Member of LOC of Workshop on "Space Radiation Environment Modelling: New Phenomena and Approaches", 7-9 Oct 1997, Moscow, Russia.
- Member of LOC of International Workshop "Radiation in the near-Earth Space: Empirical and Physical Models", 2-4 June 1993, Dubna, Russia.

**Organization of sessions at conferences:** more than 20 sessions organized at European Geosciences Union General Assemblies, European Space Weather Weeks, COSPAR Assemblies, American Geophysical Union Meetings and other smaller conferences.

### **Public appearances, tutorials, talks**

#### **Invited presentations (last 10 years listed)**

- Natalia Y. Ganushkina and M. Liemohn, Constituent parts of the Earth's ring current, Fall Meeting 2019, San Francisco, CA, USA, 9 – 13 December 2019.
- Natalia Ganushkina, Low energy electrons in the inner Earth's magnetosphere, Fundamental Physical Processes in Solar-Terrestrial Research and Their Relevance to Planetary Physics ESSE18, 8-12 January 2018, Kona, Hawaii.
- N. Ganushkina, Specification of electron radiation environment at GEO and MEO for surface charging estimates, Isradynamics 2018 "Dynamical Processes in Space Plasmas", Ein Bokek, Israel, 22-29 April 2018.
- Natalia Ganushkina, Transport of keV electrons in the large- and small-scale electromagnetic fields in the inner Earth's magnetosphere, 50th Anniversary International Symposium of Center for Space Science and Radio Engineering (SSRE), 25-26 June 2018, UEC, Chofu, Tokyo, Japan
- Natalia Ganushkina, Variability of keV electrons in the Earth's magnetosphere, Space Plasmas in the Solar System, including Planetary Magnetospheres (D), Highlights of Magnetospheric Plasma Physics (D3.1), 42nd COSPAR Scientific Assembly 2018, July 14 - 22, 2018, Pasadena, California, USA.
- N. Yu. Ganushkina, Storm-time near-Earth magnetotail dynamics examined using 30 keV proton isotropic boundaries, The Magnetosphere: New Tools, New Thinking, New Results, November 12-17, 2017, Puerto Varas, Chile.
- N. Yu. Ganushkina, Low energy electrons in the inner Earth's magnetosphere, European Geosciences Union General Assembly 2016, 17–22 April 2016, Vienna, Austria.
- N. Yu. Ganushkina, From studying electron motion in the electromagnetic fields in the inner magnetosphere to the operational nowcast model for low energy (< 200 keV) electron fluxes responsible for surface charging, Thirteenth European Space Weather Week, November 14-18, 2016, Oostende, Belgium.
- Natalia Ganushkina and Stepan Dugyagin, Near-Earth plasma sheet as a seed population for the outer radiation belt, Cluster 15th and Double Star 10th anniversary workshop, 12-16 October 2015, Venice, Italy.
- Natalia Ganushkina, Stepan Dugyagin, I. Sillanpää, D. Pitchford, Substorm-associated effects in the variations of low energy electron fluxes in the inner magnetosphere: Does

the substorm's strength matter? UNSOLVED PROBLEMS IN MAGNETOSPHERIC PHYSICS, 6-12th September, 2015, Crown Spa Hotel, Scarborough, UK.

- N. Ganushkina, S. Dubyagin, I. Sillanpää, Recent revisions of the IMPTAM model, European Geosciences Union, General Assembly 2015, Vienna, Austria, 12 – 17 April 2015, SPM1.46 Radiation Belt Models.
- Natalia Ganushkina, Transport and acceleration of plasma in the inner magnetosphere, Isradynamics 2014, Dynamical Processes in Space Plasmas, Ein Bokek, Dead Sea, Israel, 16-22 March 2014.
- Natalia Ganushkina, Transport and acceleration of plasma sheet electrons to geostationary orbit (Invited), ST2.3 Earth's Inner Magnetosphere: Feeding, Dynamics and Coupling Processes, European Geosciences Union, General Assembly 2014, Vienna, Austria, 27 April – 02 May 2014.
- Natalia Ganushkina, Event-oriented type of magnetospheric magnetic field modeling, GEM Summer workshop, Portsmouth, Virginia, USA, June 15-20, 2014.
- Natalia Ganushkina, Low energy electrons (less than 200 keV) in the inner Earth's magnetosphere, Panel: Recent Advances in Empirical and Theoretical Models of the Radiation Belts (PRBEM.2), 40th COSPAR Scientific Assembly 2014, Moscow, Russia, 02 - 10 August 2014.
- Natalia Ganushkina and M. Liemohn, Transport and acceleration of plasma in the inner magnetosphere, Space Plasmas in the Solar System, including Planetary Magnetospheres (D), Highlights of Magnetospheric Plasma Physics (D3.3), 40th COSPAR Scientific Assembly 2014, Moscow, Russia, 02 - 10 August 2014.
- Ganushkina, N. and S. Dubyagin, Contributions from different current systems to SYM and ASY mid-latitude indices. Session ID#: 2764, Causes of large-scale geomagnetic disturbances, Fall AGU Meeting, December 15-19, 2014, San Francisco, CA USA.
- Natalia Ganushkina, Transport and acceleration of plasma in the inner magnetosphere, 23rd Cluster Workshop, Tromso, Norway, 16-20 September 2013, Session: 'Large Scale Dynamics within the magnetosphere.
- N. Yu. Ganushkina, O. A. Amariutei, Y. Y. Shprits, and M. W. Liemohn, Transport of the plasma sheet electrons to the geostationary distances, GEM Workshop, 17 – 22 June 2012, Snowmass, CO, USA.
- N. Yu. Ganushkina, The Interplay of Processes Within Inner Magnetosphere and the Near-Earth Plasma Sheet, 5th Isradynamics Conference, Dynamical Processes in Space and Astrophysical Plasmas, April 29 - May 7, 2012, Jerusalem, Israel 2012.
- Keynote lecture: N. Yu. Ganushkina, Physics of the ring current in the Earth's magnetosphere: Important problems and new challenges, 5th Isradynamics Conference, Dynamical Processes in Space and Astrophysical Plasmas, April 29 - May 7, 2012, Jerusalem, Israel 2012.

#### **External research funding (as a PI)**

- European Union's **Horizon 2020** research and innovation programme, Call: H2020-SPACE-2020, Topic: SPACE-30-SCI-2020, Type of action: RIA, grant agreement No 101004131, SHARP: "SHocks: structure, AcceleRation, dissiPation", €413,763.75 (share of Finnish Meteorological Institute), Jan. 2021 – Dec. 2023, **PI: Coordinator (Finnish Meteorological Institute) Natalia Ganushkina**, site of research: Finnish Meteorological Institute, Helsinki, Finland. Total budget: €1467,553.75.

- NASA Heliophysics Living With a Star Science, “Response of magnetospheric keV electron population to solar wind structures”, Jan. 2020 – Dec. 2023, \$777,458.00, **PI: Natalia Ganushkina**, site of research: University of Michigan, Ann Arbor, USA.
- ESA contract No 4000131381/20/D/CT, “P3-SWE-X Space Environment Nowcast and Forecast Development (RB-FAN)”, Sep. 2020-Sep.2022, €100,000 (share of Partner: **Finnish Meteorological Institute, PI: Natalia Ganushkina**). Site of research: Finnish Meteorological Institute, Helsinki, Finland.
- ESA Contract No 4000128226/19/NL/AS, "Plasma Environment Modelling in the Earth's Magnetosphere", Oct. 2019-Sep.2022, €140,000 (share of Leading Partner: **Finnish Meteorological Institute, PI: Natalia Ganushkina**). Site of research: Finnish Meteorological Institute, Helsinki, Finland.
- NASA Heliophysics Supporting Research, "Solar wind driving of keV electron radiation environment in the near-Earth's space", \$668,844, Mar. 2017 – Mar. 2020, **PI: N. Ganushkina**, site of research: University of Michigan, Ann Arbor, USA.
- European Union's **Horizon 2020** research and innovation programme, Call: H2020-PROTEC-2014, Topic: PROTEC-1-2014, Type of action: RIA, grant agreement No 637302 PROGRESS “Prediction of Geospace Radiation Environment and solar wind parameters”, €274,395 (share of Finnish Meteorological Institute), Jan. 2015 – Dec. 2017, **PI: (from Finnish Meteorological Institute) Natalia Ganushkina**, site of research: Finnish Meteorological Institute, Helsinki, Finland.
- NASA Heliophysics Supporting Research, “Revealing the Earth’s magnetotail structure from low-altitude isotropic boundaries (IB)”, \$385,097, May, 2014 – May, 2017, **PI: Natalia Ganushkina** (4 months/year), site of research: University of Michigan, Ann Arbor, USA.
- Seventh Framework Programme of the European Union, Collaborative Project SPA.2013.2.3-01, SPACESTORM: “Modelling space weather events and mitigating their effects on satellites”, €374,778 (share of Finnish Meteorological Institute), Mar. 2014 – Feb. 2017, **PI: (from Finnish Meteorological Institute) Natalia Ganushkina**, site of research: Finnish Meteorological Institute, Helsinki, Finland.
- Seventh Framework Programme of the European Union, Collaborative Project SPA.2010.2.3-1, SPACECAST: “Protecting space assets from high energy particles by developing European dynamic modeling and forecasting capabilities”, €360,726 (share of Finnish Meteorological Institute), Mar. 2011 – Feb. 2014, **PI: (from Finnish Meteorological Institute) Natalia Ganushkina**, site of research: Finnish Meteorological Institute, Helsinki, Finland.
- Academy of Finland, Research Council for Natural Sciences and Engineering, “Inner magnetosphere: Dynamical states and the configuration of fields and currents”, €361,070. Jan. 2011 – Dec. 2014, **PI. Natalia Ganushkina**, site of research: Finnish Meteorological Institute, Helsinki, Finland.

#### **External research funding (as a co-PI/co-I)**

- NASA Heliophysics Grand Challenges Research, “Outflow and Geospace: Impact and Feedback of Heavy Ions In the Magnetosphere”, \$1,042,745.00, June 2017 – May 2020, PI: M. Liemohn, **Co-PI: N. Ganushkina**.



- NASA Heliophysics Living With a Star Science, “Effect of solar variability on the geospace radiation environment”, \$989,739.00, May 2017 – May 2021, PI: V. Tenishev, **Co-PI: N. Ganushkina**
- NASA Heliophysics Guest Investigators, "Connections Between and Drivers of Inner Magnetospheric Current Densities and Hot Ion Structures", \$452,091, Nov. 2016 - Oct. 2019, PI: Prof. M. Liemohn, **Co-PI: N. Ganushkina**
- NSF, “PREEVENTS Track 2: Collaborative Research: CHARGED”, \$??, March 2017 – February 2022, PI: Liemohn **Co-I: Ganjushkina**
- NASA Heliophysics Guest Investigators, “New 3D Suprathermal Ion Data Products from Wind/STICS for the Solar Wind and Earth's Magnetosphere”, Feb. 2015 – Feb. 2017, \$199,916.00, PI: Jim M. Raines, **Co-Is: Natalia Ganushkina**, Susan Lepri.
- NASA Heliophysics Guest Investigator Program, “Analysis of Hot Ion Structures in the Inner Magnetosphere”, Dec., 2013 – Dec., 2016, \$368,239, PI: Michael W. Liemohn, **Co-Is: Natalia Ganushkina**, Raluca Ilie.
- NASA NNH11ZDA001N-GEO, “Energization of the Electron Radiation Belt by Magnetic Pumping”, Dec. 2011 – Dec. 2014, \$388,417, PI: Joseph Borovsky, **Co-I: Natalia Ganushkina**.
- NASA – HTP, “Composition and Feedback in Geospace”, April 2011 – March 2014, \$1,223,371, PI: Michael Liemohn, **Co-Is: Natalia Ganushkina**, Gabor Toth, Aaron Ridley, Mark Moldwin, Janet Kozyra, Darren De Zeeuw.
- National Science Foundation, “GEM: Assessing the Storm-Time Magnetic Distortion in the Inner Magnetosphere”, Feb. 2009 – Jan. 2013, \$396,835, PI: Michael Liemohn, **Co-PI: Natalia Ganushkina**.
- NASA, “Integrated Assessment of Radiation Belt Drivers, May 2008 – May 2012, \$387,400, PI: Michael Liemohn, **Co-Is: Natalia Ganushkina**, Janet Kozyra, Mei-Ching Fok (NASA GSFC).
- Academy of Finland, Research Council for Natural Sciences and Engineering, “Similarities and differences of the Arctic and Antarctic magnetosphere-ionosphere coupling”, Jan. 2008 – Dec. 2011, €239,992, PI: Ari Viljanen, **Co-PI: Natalia Ganushkina**, Candidate's share: €239,992.

### **Citation statistics (number of citations, h-index)**

According to Web of Knowledge on May 3, 2022:

Results found: 111

Sum of the Times Cited: 1,962

Average Citations per Item: 17.68

h-index: 28

**List of Publications of Dr. Natalia Ganushkina**  
(as on May 3, 2022)

**- Articles published in refereed international scientific journals**

1. **Ganushkina, N. Y.**, Dandouras, I., Liemohn, M. W., Rème, H., & Cao, J. (2021). Turning instrument background into science data for structural features of radiation belts. *Journal of Geophysical Research: Space Physics*, 126, e2021JA030014. <https://doi.org/10.1029/2021JA030014>
2. Dubyagin, S., Apatenkov, S., Gordeev, E., **Ganushkina, N.**, & Zheng, Y. (2021). Conditions of loss cone filling by scattering on the curved field lines for 30 keV protons during geomagnetic storm as inferred from numerical trajectory tracing. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028490. <https://doi.org/10.1029/2020JA028490>
3. Stepanov, N. A., Sergeev, V. A., Sormakov, D. A., Andreeva, V. A., Dubyagin, S. V., **Ganushkina, N.**, et al. (2021). Superthermal proton and electron fluxes in the plasma sheet transition region and their dependence on solar wind parameters. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028580. <https://doi.org/10.1029/2020JA028580>
4. Yinsi Shou, Valeriy Tennishev, Yuxi Chen, Gabor Toth, **Natalia Ganushkina**, Magnetohydrodynamic with Adaptively Embedded Particle-in-Cell model: MHD-AEPIC, *Journal of Computational Physics*, 446 (2021) 110656, <https://doi.org/10.1016/j.jcp.2021.110656>.
5. **Ganushkina, N. Y.**, Swiger, B., Dubyagin, S., Matéo-Vélez, J.-C., Liemohn, M. W., Sicard, A., & Payan, D. (2021). Worst-case severe environments for surface charging observed at LANL satellites as dependent on solar wind and geomagnetic conditions. *Space Weather*, 19, e2021SW002732. <https://doi.org/10.1029/2021SW002732>
6. Liemohn, M. W., Azari, A. R., **Ganushkina, N. Y.**, & Rastätter, L. (2020). The STONE curve: A ROC?derived model performance assessment tool. *Earth and Space Science*, 7, e2020EA001106. <https://doi.org/10.1029/2020EA001106>
7. Swiger BM, Liemohn MW and **Ganushkina NY** (2020) Improvement of Plasma Sheet Neural Network Accuracy With Inclusion of Physical Information. *Front. Astron. Space Sci.* 7:42.doi: 10.3389/fspas.2020.00042
8. Haiducek, J. D., Welling, D. T., Morley, S. K., **Ganushkina, N. Y.**, and Chu, X. (2020). Using multiple signatures to improve accuracy of substorm identification. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027559. <https://doi.org/10.1029/2019JA027559>.
9. Haiducek, J.D., **N.Y. Ganushkina**, S. Dubyagin, and D.T Welling. (2019), On the accuracy of adiabaticity parameter estimations using magnetospheric models, *J. Geophys. Res. Space Physics*, 124. <https://doi.org/10.1029/2018JA025916>.
10. Zheng, Y., **Ganushkina, N. Y.**, Jiggins, P., Jun, I., Meier, M., Minow, J. I., et al (2019). Space Radiation and Plasma Effects on Satellites and Aviation: Quantities and Metrics for Tracking Performance of Space Weather Environment Models. *Space Weather*, 17, 1384–1403. <https://doi.org/10.1029/2018SW002042>.
11. **Ganushkina, N. Y.**, Sillanpää, I., Welling, D. T., Haiducek, J., Liemohn, M., Dubyagin, S., & Rodriguez, J. V. (2019). Validation of Inner Magnetosphere Particle Transport

- and Acceleration Model (IMPTAM) with long-term GOES MAGED measurements of keV electron fluxes at geostationary orbit. *Space Weather*, 17. <https://doi.org/10.1029/2018SW002028>.
12. Haiducek, J. D., **Ganushkina, N. Y.**, Dubyagin, S., & Welling, D. T. (2019). The role of current sheet scattering in the proton isotropic boundary formation during geomagnetic storms. *Journal of Geophysical Research: Space Physics*, 124. <https://doi.org/10.1029/2018JA026290>.
  13. Castillo, A. M., Shprits, Y. Y., **Ganushkina, N.**, Drozdov, A., Aseev, N., Wang, D., and Dubyagin, S. (2019), Simulations of the inner magnetospheric energetic electrons using the IMPTAM-VERB coupled model, *Journal of Atmospheric and Solar-Terrestrial Physics*, 191, 105050, <https://doi.org/10.1016/j.jastp.2019.05.014>.
  14. Palmroth, M., Praks, J., Vainio, R., Janhunen, P., Kilpua, E. K. J., **Ganushkina, N. Yu.**, et al. (2019), FORESAIL-1 cubesat mission to measure radiation belt losses and demonstrate de-orbiting. *J. Geophys. Res. Space Physics*, 124. <https://doi.org/10.1029/2018JA026354>
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