

Dr. Elena Kronberg

Curriculum Vitae

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Date of birth: 2. Juli 1978
Place of birth: Kemerovo, Russia
Citizenship: German



Education

- Started **Habilitation**, Ludwig Maximilian University of Munich (LMU), Germany,
05/2016 Research: “Interaction of charged particles with electro-magnetic waves in the terrestrial magnetosphere”.
- 05/2006 **Dr. rer. nat.**, Technical University of Braunschweig, Germany, Thesis title: “Dynamical processes in the Jovian magnetotail”.
- 06/2001 **Master in Physics**, Altai State University (ASU), Barnaul, Russia, Thesis title: “Stochastic dynamics of relativistic electrons in the vector-scalar wave field and in the static magnetic field”.
- 06/1999 **Bachelor in Physics**, ASU, Barnaul, Russia, Thesis title: “Stochastic dynamics of relativistic electrons in the upper-hybrid wave field and transverse magnetic field”.

Professional positions

- Since **Guest scientist**, Geophysics, Department of Earth and
08/15 Environmental sciences, LMU, Munich.
INTERMAGNET data analysis, teaching
- Since **Scientist**, Max Planck Institute for Solar System Research (MPS),
11/2006 Göttingen.
Cluster/RAPID project, scientific data analysis; preparation of data and documentation, software support for Cluster Science Archive
- 05/2006- **Postdoctoral Researcher**, MPS, Katlenburg-Lindau.
10/2006 Galileo Project
- 09/2001- **Scientific assistant**,
12/2002 Department of general physics, ASU, Barnaul, Russia.
teaching at undergraduate level: informatics, general physics, optics (laboratory)

Fellowships and Awards

- 2016 Grant for the project “Energy transformation, turbulence and acceleration in space plasmas” in the frame of a trilateral partnership between the Ukraine, Russia and Germany, 260,000 Euros, Volkswagen Foundation, Germany, press release by Space Daily

- 2015 Co-Investigator (Co-I) of the THOR/CMS instrument
- 2012-2014 Grant for leading an International Space Science Institute (ISSI) Team on “Heavy ions: their dynamical impact on the magnetosphere”, Switzerland, Result: Review in Space Science Reviews
- 2010 Co-I of the Cluster/RAPID instrument, Science Working Team, Belgium
- 2010 Team Achievement Award, RAPID Team, Cluster Workshop, Greece
- 2008 Work on “Comparison of periodic substorms at Jupiter and Earth” was highlighted by ESA. This story was published in many public news portals, e.g. Space Daily.

Services to the scientific community

- 2013–2016 Proposal Reviewer: NASA review panel, Swedish National Space Board, Kazakhstan National Centre of Science and Technology, Hungarian National Research Development and Innovation Office, Czech Science Foundation
- Since 2006 Referee for peer-review journals: J. of Geophysical Research, Geophysical Research Letters, Planetary Space Science, Space Science Reviews, Ann. Geophysicae, Advances in Space Research, Canadian Journal of Physics

Organisation of scientific meetings (selection)

- 2017 EGU, session co-convener, ST2.9, “Forecasting radiation belt dynamics: the role of solar wind-magnetosphere coupling”, Austria
- 2016 EGU, session co-convener, ST3.3, “The dynamical ionosphere”, Austria
- 2013 EGU, session convener, ST2.5, “Heavy ions and their dynamical impact on the magnetosphere”, Austria
- 2013 Cluster 23rd workshop, scientific committee, 120 participants, Norway
- 2012 AGU, session convener, SM016, “Planetary Ion Sources and Magnetospheric Impacts”, USA

Public relations (recent)

- Video for Eclipse de Sol 2017, La Escuela Superior de Fisica y Matematicas in Mexico City, to encourage Mexican girls to combine family and science

Other scientific achievements

- Author of 51 peer-review publications, 18 of which I am the first author
- 20 invited talks e.g. JpGU(Japan), Cluster Workshop (Slovenia, USA), EGU (Austria), COSPAR (USA, Russia), GEM (USA), AOGS (Australia), WPGM (Taiwan), EPSC (Germany), ICS (Austria)
- Member of ISSI Teams led by D. Turner and G. Reeves, by M. Balikhin, by M. Vogt and by F. Gastaldello; member of GEM focus group led by R. Chappell, B. Schunk and D. Welling

Peer-reviewed publications

- 2017 Liu, C. M., H. S. Fu, J. B. Cao, Y. Xu, Y. Q. Yu, **E. A. Kronberg**, P. W. Daly, Rapid pitch angle evolution of suprathermal electrons behind dipolarization fronts, *Geophys. Res. Lett.*, accepted, 2017
- Li, K., Y. Wei, M. Andre, A. Eriksson, S. Haaland, **E. A. Kronberg**, H. Nilsson, L. Maes, Z. J. Rong and W. X. Wan, Cold ion outflow modulated by the solar wind energy input and tilt of the geomagnetic dipole, *J. Geophys. Res.*, accepted, 2017
- Kronberg, E. A.**, D. Welling, L. M. Kistler, C. Mouikis, P. W. Daly, E. E. Grigorenko, B. Klecker and I. Dandouras, Contribution of energetic and heavy ions to the plasma pressure: The 27 September to 3 October 2002 storm, *J. Geophys. Res.*, 10.1002/2017JA024215, 2017
- Luo H., **E. A. Kronberg**, K. Nykyri, K. J. Trattner, P. W. Daly, G. X. Chen, A. M. Du and Y. S. Ge, IMF dependence of energetic oxygen and hydrogen ion distributions in the near-Earth magnetosphere, *J. Geophys. Res.*, 122, 5, 5168–5180, 2017
- Kronberg E. A.**, E. E. Grigorenko, D. L. Turner, P. W. Daly, Y. Khotyaintsev and L. Kozak, Comparing and contrasting dispersionless injections at geosynchronous orbit during a substorm event, *J. Geophys. Res.*, 122, 10.1002/2016JA023551, 2017
- Li K., S. E. Haaland, **E. A. Kronberg**, M. Andre, P. W. Daly and Y. Wei, Dawn-dusk asymmetry of ionospheric outflow, *AGU Monograph*, accepted, 2017
- Kronberg E. A.**, K. Li, E. E. Grigorenko, R. Maggiolo, S. E. Haaland, P. W. Daly and H. Luo, Dawn-dusk asymmetries in the near-Earth plasma sheet: ion observations, *AGU Monograph*, accepted, 2017
- Kozak L. V., A. T. Y. Lui, **E. A. Kronberg**, A. S. Prokhorenkov, Turbulent processes in Earth's magnetosheath by Cluster mission measurements, *J. of Atmospheric and Solar-Terrestrial Physics*, 154, 115-126, doi:10.1016/j.jastp.2016.12.016, 2017
- Grigorenko E. E., **E. A. Kronberg** and P. W. Daly, Heating and acceleration of charged particles during magnetic field dipolarizations, *Cosmic Research*, 55, 1, 57-66, doi:10.1134/S0010952517010063, 2017
- 2016 Grigorenko E. E., **E. A. Kronberg**, P. W. Daly, N. Yu. Ganushkina, B. Lavraud, J.-A. Sauvaud and L. M. Zelenyi, Origin of low proton-to-electron temperature ratio in the Earth's plasma sheet, *J. Geophys. Res.*, 121, 10, 9985-10004, doi:10.1002/2016JA022874, 2016
- Kronberg E. A.**, M. V. Rashev, P. W. Daly, Y. Y. Shprits, D.L. Turner, A. Drozdov, M. Dobynde, A. C. Kellerman, T. A. Fritz, V. Pierrard, K. Borremans, B. Klecker, R. Friedel, Contamination in electron observations of the silicon detector on board Cluster/RAPID/IES instrument in Earth's radiation belts and ring current, *Space Weather*, 14, 449-462, doi:10.1002/2016SW001369, 2016

- 2015 Grigorenko E. E., Malykhin A. Yu., **Kronberg E. A.**, Malova Kh. V., P. W. Daly, Acceleration of ions to suprathermal energies by turbulence in the plasmoid-like magnetic structures, *J. Geophys. Res.*, 120, doi:10.1002/2015JA021314, 2015
- Kronberg E. A.**, E. E. Grigorenko, S. E. Haaland, P. W. Daly, D. C. Delcourt, H. Luo, L. M. Kistler and I. Dandouras, Distribution of energetic oxygen and hydrogen in the near-Earth plasma sheet, *J. Geophys. Res.*, 120, doi:10.1002/2014JA020882, 2015
- Breuillard, H., O. Agapitov, A. Artemyev, **E. A. Kronberg**, S. E. Haaland, P. W. Daly, V. V. Krasnoselskikh, D. Boscher, S. Bourdarie, Y. Zaliznyak and G. Rolland, Field-aligned chorus wave spectral power in Earth's outer radiation belt, *Ann. Geophys.*, 33, 583-597, doi:10.5194/angeo-33-583-2015, 2015
- Krupp N., **E. A. Kronberg**, and A. Radioti, Jupiter's Magnetotail, Magnetotails in the Solar System, *American Geophysical Union*, A. Keiling, C. Jackman, P. Delamere (Eds.), ISBN: 978-1-118-84234-8, 2015
- Louarn P., N. Andre, C. M. Jackman, S. Kasahara, **E. A. Kronberg**, M. F. Vogt, Magnetic Reconnection and Associated Transient Phenomena Within the Magnetospheres of Jupiter and Saturn, *Space Sci. Rev.*, Vol. 187, 1-4, pp. 181-227, doi:10.1007/s11214-014-0047-5, 2015
- 2014 **Kronberg E. A.**, M. Ashour-Abdalla, I. Dandouras, D. C. Delcourt, E. E. Grigorenko, L. M. Kistler, I. V. Kuzichev, J. Liao, R. Maggiolo, H. V. Malova, K. G. Orlova, V. Perroomian, D. R. Shklyar, Y. Y. Shprits, D. T. Welling, L. M. Zelenyi, Circulation of Heavy Ions and Their Dynamical Effects in the Magnetosphere: Recent Observations and Models, *Space Sci. Rev.*, Vol.184, 173-235, doi:10.1007/s11214-014-0104-0, 2014
- Luo, H., **E. A. Kronberg**, E. E. Grigorenko, M. Fränz, P. W. Daly, G. X. Chen, A. M. Du, L. M. Kistler, and Y. Wei, Evidence of strong energetic ion acceleration in the near-Earth magnetotail, *Geophys. Res. Lett.*, Vol. 41, 1-5, doi:10.1002/2014GL060252, 2014
- Kronberg E. A.**, S. E. Haaland, P. W. Daly, E. Grigorenko, L. M. Kistler, M. Fränz, and I. Dandouras, Correction on Oxygen and hydrogen abundance in the near-Earth magnetosphere: Statistical results on the response to the geomagnetic and solar wind activity conditions, *J. Geophys. Res.*, 117, A12208, doi:10.1002/2013JA019703, 2014
- Savin S., E. Amata, V. Budaev, L. Zelenyi, **E. A. Kronberg**, J. Buechner, J. Safrankova, Z. Nemecek, J. Blecki, L. Kozak, S. Klimov, A. Skalsky and L. Lezhen, On nonlinear cascades and resonances in the outer magnetosphere, *Pis'ma v ZhETF*, 99, issue 1, 19-24, doi:10.7868/S0370274X14010044, 2014
- 2013 **Kronberg, E. A.** and P.W. Daly, Spectral analysis for wide energy channels, *Geoscientific Instrumentation, Methods and Data Systems*, Vol. 2, issue 2, 257-261, 2013

- Li K., S. Haaland, A. Eriksson, M. Andr , E. Engwall, Y. Wei, **E. A. Kronberg**, M. Fr nz, P. W. Daly, H. Zhao, Q. Y. Ren, Transport of cold ions from the polar ionosphere to the plasma sheet, *J. Geophys. Res.*, Vol. 118, Issue 9, pp. 5467-5477, doi:10.1002/jgra.50518, 2013
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- Wang, R., A. Du, R. Nakamura, Q. Lu, Y. Khotyaintsev, M. Volwerk, T. Zhang, **E. A. Kronberg**, P. W. Daly and A. N. Fazakerley, Observation of multiple sub-cavities adjacent to single separatrix, *Geophys. Res. Lett.*, Vol. 40, 1 7, doi:10.1002/grl.50537, 2013
- Grigorenko, E. E., H. V. Malova, A. A. Artemyev, **E. A. Kronberg**, R. Koleva, P. W. Daly, J. B. Cao, C. J. Owen, J.-A. Sauvaud and L. M. Zelenyi, Current sheet structure and kinetic properties of plasma flows during a near-Earth magnetic reconnection under the presence of a guide field, *J. Geophys. Res.*, Vol. 118, Issue 6, pp. 3265-3287, doi:10.1002/jgra.50310, 2013
- Nakamura, R., W. Baumjohann, E. Panov, M. Volwerk, J. Birn, A. Artemyev, A. A. Petrukovich, O. Amm, L. Juusola, M. G. Kubyshkina, V. A. Sergeev, S. Apatenkov, Flow bouncing and electron injection observed by Cluster, **E. A. Kronberg**, P. W. Daly, A. N. Fazakerley, Y. Khotyaintsev, M. Fillingim and J. M. Weygand *J. Geophys. Res.*, Vol. 118, Issue 5, pp. 2055-2072, doi:10.1002/jgra.50134, 2013
- Kasahara, S., **E. A. Kronberg**, N. Krupp, T. Kimura, C. Tao, S. V. Badman and M. Fujimoto, Asymmetric distribution of reconnection jet fronts in the Jovian nightside magnetosphere, *J. Geophys. Res.*, 118, doi:10.1029/2012JA018130, 2013
- 2012 Teh, W.-L., R. Nakamura, M. Fujimoto, **E. A. Kronberg**, A. N. Fazakerley, P. W. Daly and W. Baumjohann, Electron dynamics in the reconnection ion diffusion region, *J. Geophys. Res.*, *J. Geophys. Res.*, 117, A12225, doi:10.1029/2012JA017896, 2012
- Fu, H. S., Yu. V. Khotyaintsev, A. Vaivads, M. Andr , V. A. Sergeev, S. Y. Huang, **E. A. Kronberg** and P. W. Daly, Pitch angle distribution of suprathermal electrons behind dipolarization fronts: A statistical overview, *J. Geophys. Res.*, 117, A12221, doi:10.1029/2012ja018141, 2012
- Kronberg E. A.**, S. E. Haaland, P. W. Daly, E. Grigorenko, L. M. Kistler, M. Fr nz, and I. Dandouras, Oxygen and hydrogen abundance in the near-Earth magnetosphere: Statistical results on the response to the geomagnetic and solar wind activity conditions, *J. Geophys. Res.*, 117, A12208, doi:10.1029/2012JA018071, 2012
- Li K., S. Haaland, A. Eriksson, M. Andr , E. Engwall, Y. Wei, **E. A. Kronberg**, M. Fr nz, P. W. Daly, H. Zhao, Q. Y. Ren, On the ionospheric source region of cold ion outflow, *Geophys. Res. Lett.*, 39, 18, L18102, doi:10.1029/2012GL053297, 2012
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- Nykyri, K., A. Otto, E. Adamson, **E. A. Kronberg** and P.W. Daly, On the Origin of High-Energy Particles in the Cusp Diamagnetic Cavity, *J. of Atmospheric and Solar-Terrestrial Physics*, 87, 70-81, doi:10.1016/j.jastp.2011.08.012, 2012
- Savin S., E. Amata, V. Lutsenko, L. Zelenyi, J. Safrankova, Z. Nemecek, N. Borodkova, J. Buechner, P. W. Daly, **E. A. Kronberg**, J. Blecki, V. Budaev, L. Kozak, A. Skalsky and L. Lezhen, Super dense plasma streams as drivers of anomalous magnetospheric dynamics, *Ann. Geophys.*, 30, 1-7, doi:10.5194/angeo-30-1-2012, 2012
- Kronberg E. A.**, S. Kasahara, N. Krupp and J. Woch, Field-aligned beams and reconnection in the Jovian magnetotail, *Icarus*, 217, pp. 55-65, doi:10.1016/j.icarus.2011.10.011, 2012
- 2011 Kasahara, S., **E. A. Kronberg**, N. Krupp, T. Kimura, C. Tao, S. V. Badman, A. Retino and M. Fujimoto, Magnetic reconnection in the Jovian tail: X-line evolution and consequent plasma sheet structures, *J. Geophys. Res.*, *J. Geophys. Res.*, 116, A11219, doi:10.1029/2011JA016892, 2011
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- 2010 Haaland, S., **E. A. Kronberg**, P. W. Daly, M. Fränz, L. Degener, E. Georgescu, and I. Dandouras, Spectral characteristics of protons in the Earth's plasmashet: statistical results from Cluster CIS and RAPID, *Ann. Geophys.*, 28, 1483-1498, doi:10.5194/angeo-28-1483-2010, 2010
- Asano, Y., I. Shinohara, A. Retino, P. W. Daly, **E. A. Kronberg**, T. Takada, R. Nakamura, Yu. V. Khotyaintsev, A. Vaivads, T. Nagai, W. Baumjohann, A. N. Fazakerley, C. J. Owen, Y. Miyashita, E. A. Lucek, and H. Reme, Electron acceleration signatures in the magnetotail associated with substorms, *J. Geophys. Res.*, 115, A05215, doi:10.1029/2009JA014587, 2010
- Kronberg E. A.**, P. W. Daly, I. Dandouras, S. Haaland and E. Georgescu, Generation and validation of ion energy spectra based on Cluster RAPID and CIS measurements, *The Cluster Active Archive Studying the Earth's Space Plasma Environment, Series: Astrophysics and Space Science Proceedings*, Laakso H., Taylor M., Escoubet C. P. (Eds.), ISBN: 978-90-481-3498-4, doi:10.1007/978-90-481-3499-1_20, 2010
- Daly P.W. and **E. A. Kronberg**, The Cluster Active Archive Studying the Earth's Space Plasma Environment, RAPID Products at the Cluster Active Archive, *Series: Astrophysics and Space Science Proceedings*, Laakso H., Taylor M., Escoubet C. P. (Eds.), ISBN: 978-90-481-3498-4, doi:10.1007/978-90-481-3499-1_9, 2010

- 2009 Yamauchi, M., I. Dandouras, P. W. Daly, G. Stenberg, H. U. Frey, P.-A. Lindqvist, Y. Ehibara, H. Nilsson, R. Lundin, H. Reme, M. Andre, Magnetospheric solitary structure maintained by 3000 km/s ions as a cause of westward moving auroral buldge at 19 MLT, **E. A. Kronberg**, A. Balogh and M. Henderson, *Ann. Geophys.*, 27, 2947-2969, 2009
- Kronberg E. A.**, J. Woch, N. Krupp and A. Lagg, A summary of observational records on periodicities above the rotational period in the Jovian magnetosphere, *Ann. Geophys.*, 27, 2565-2573, 2009
- Kronberg E. A.**, A. Kis, B. Klecker, P.W. Daly, and E. A. Lucek, Multipoint observations of ions in the 30-160 keV energy range upstream of the Earth's bow shock, *J. Geophys. Res.*, 114, A03211, doi:10.1029/2008JA013754, 2009
- 2008 Retino A., R. Nakamura, A. Vaivads, Y. Khotyiantsev, T. Hayakawa, K. Tanaka, S. Kasahara, M. Fujimoto, I. Shinohara, J. Eastwood, M.M. Andre, W. Baumjohann, P. Daly, **E. Kronberg**, N. Cornilleau-Wehrlin, Cluster observations of energetic electrons and electromagnetic fields within a reconnecting thin current sheet in the Earth's magnetotail, *J. Geophys. Res.*, 113, A12215, doi:10.1029/2008JA013511, 2008
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- Kronberg, E. A.**, J. Woch, N. Krupp, A. Lagg, P. W. Daly, and A. Korth, Comparison of periodic substorms at Jupiter and Earth, *J. Geophys. Res.*, 113, A04212, doi:10.1029/2007JA012880, 2008
- 2007 **Kronberg E. A.**, K-H. Glassmeier, J. Woch, N. Krupp, A. Lagg and M. K. Dougherty, A possible intrinsic mechanism for the quasi-periodic dynamics of the Jovian magnetosphere, *J. Geophys. Res.*, 112 (A5), A05203, doi:10.1029/2006JA011994, 2007
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- 2005 **Kronberg E. A.**, J. Woch, N. Krupp, A. Lagg, K. K. Khurana, and K-H. Glassmeier, Mass release at Jupiter - substorm-like processes in the Jovian magnetotail, *J. Geophys. Res.*, 110, A03211, doi:10.1029/2004JA010777, 2005

Other publications

- 2016 RAPID User Guide, P. W. Daly and **E. A. Kronberg** , http://caa.estec.esa.int/documents/UG/CAA_EST_UG_RAP_v50.pdf
- 2016 RAPID Calibration report, **E. A. Kronberg** and P. W. Daly, http://caa.estec.esa.int/documents/CR/CAA_EST_CR_RAP_v50.pdf
- 2016 RAPID interface Control Document, P. W. Daly, S. Mühlbacher and **E. A. Kronberg** , http://caa.estec.esa.int/documents/ICD/CAA_EST_ICD_RAP_V53.pdf