

Solène Lejosne

7 Gauss Way, Berkeley, CA 94720
(510) 229-7244
solene.lejosne@yahoo.fr

PROFESSIONAL RESEARCH EXPERIENCE

University of California, Berkeley (2014 - Present)

- Assistant Researcher at the Space Sciences Laboratory, RBSP-EFW team (2016-present)
- Postdoctoral Scholar at the Space Sciences Laboratory, RBSP-EFW team (2014-2016)
- Research works on time domain structures, aurora and ionosphere-magnetosphere coupling
- Tohban (scientist on duty) for THEMIS
- Reviewer *Journal of Geophysical Research - Space Physics* and *Geophysical Research Letters*

British Antarctic Survey, Cambridge, England (2013, 6 months)

- Research on surface charging at geostationary orbit
- Creation of an algorithm for fast computations of the drift shell parameter L^*

University of Toulouse, France (2010-2013)

- Research on central plasma sheet parameters, radial diffusion in the Earth's radiation belts and adiabatic invariant theory
- Creation of theoretical and numerical approaches to radial diffusion
- Reviewer *Dynamics of Magnetically Trapped Particles*, Roederer and Zhang, Springer, 2014
- Supervisor of one undergraduate student (physics)

Swedish Institute of Space Physics, Kiruna Division, Sweden (2009, 3 months)

- Research on energy of auroral electrons based on Auroral Large Imaging System (ALIS) observations
- Creation of an algorithm for triangulation of auroral images

EDUCATION

University of Toulouse, France (2010-2013)

- *Ph.D. (2013)* - co-funding French Space Agency (CNES) and Aerospace French Lab (ONERA)
- *European Summer School, Alpbach (2013) – Innovative Space Weather Missions*

Supaéro - ISAE, Toulouse, France (2009-2010)

- *Master of Sciences (2010) Aerospace Engineering & Research Master (2010) Astrophysics Space Physics & Planetary Science*

École Polytechnique, Palaiseau, France (2006-2010)

- *Bachelor of Sciences (2008), Ingénieur (2009) & Diplôme de l'École Polytechnique Final Degree (2010)*
- *Military service. Metropolitan France and French Polynesia (2006, 6 months)*

Classes Préparatoires, Lycée Henri IV, Paris, France (2003-2006)

- *Intensive preparatory program in science. Preparation for competitive entrance into the Grandes Écoles*

RESEARCH ACTIVITY

PUBLICATIONS

1. Mozer, F.S., O.A. Agapitov, V. Angelopoulos, A. Hull, D. Larson, **S. Lejosne** and J. P. McFadden (2016), Extremely Field-Aligned Cool Electrons in the Dayside Outer Magnetosphere, *Geophys. Res. Lett.*, doi: 10.1002/2016GL072054.

2. **Lejosne, S.**, and F.S. Mozer (2016), Typical values of the electric drift $E \times B/B^2$ in the inner radiation belt and slot region as determined from Van Allen Probe measurements, *J. Geophys. Res. Space Physics*, 121, doi: 10.1002/2016JA023613.
3. **Lejosne, S.**, and F.S. Mozer (2016), Van Allen Probe measurements of the electric drift $E \times B/B^2$ at Arecibo's $L = 1.4$ field line coordinate, *Geophys. Res. Lett.*, 43, doi: 10.1002/2016GL069875.
4. **Lejosne, S.**, and J.G. Roederer (2016), The "zebra stripes": An effect of F region zonal plasma drifts on the longitudinal distribution of radiation belt particles, *J. Geophys. Res. Space Physics*, 121, 507-518, doi: 10.1002/2015JA02192.
5. Mozer, F. S., O. V. Agapitov, A. Artemyev, J. F. Drake, V. Krasnoselskikh, **S. Lejosne**, and I. Vasko (2015), Time domain structures: What and where they are, what they do, and how they are made, *Geophys. Res. Lett.*, 42, 3627–3638. doi: 10.1002/2015GL063946.
6. Amaya, J., S. Musset, V. Andersson, A. Diercke, C. Höller, S. Iliev, L. Juhász, R. Kiefer, R. Lasagni, **S. Lejosne**, M. Madi, M. Rummelhagen, M. Scheucher, A. Sorba and S. Thonhofer, (2015), The PAC2MAN mission: A new tool to understand and predict solar energetic events, *J. Space Weather Space Clim*, 5, A5, DOI: 10.1051/swsc/2015005.
7. **Lejosne, S.** (2014), An algorithm for approximating the L^* invariant coordinate from the real-time tracing of one magnetic field line between mirror points, *J. Geophys. Res., Space Physics*, doi: 10.1002/2014JA020016.
8. Mozer, F.S., Agapitov, O., Krasnoselskikh, V., **Lejosne, S.**, Reeves, G.D., and Roth, I. (2014), Direct Observation of Radiation-Belt Electron Acceleration from Electron-Volt Energies to Megavolts by Nonlinear Whistlers, *Phys. Rev. Lett.*, 113, 035001.
9. **Lejosne, S.** (2013), Modélisation du phénomène de diffusion radiale au sein des ceintures de radiation terrestres par technique de changement d'échelle. Ph.D Thesis, Space Physics, University of Toulouse.
10. **Lejosne, S.**, D. Boscher, V. Maget, and G. Rolland (2013), Deriving electromagnetic radial diffusion coefficients of radiation belt equatorial particles for different levels of magnetic activity based on magnetic field measurements at geostationary orbit, *J. Geophys. Res., Space Physics*, 118, 3147-3156, doi: 10.1002/jgra.50361.
11. **Lejosne, S.**, D. Boscher, V. Maget, and G. Rolland (2012), Bounce-averaged approach to radial diffusion modeling: From a new derivation of the instantaneous rate of change of the third adiabatic invariant to the characterization of the radial diffusion process, *J. Geophys. Res.*, 117, A08321, doi:10.1029/2012JA018011.

SEMINARS

1. "The zebra stripes": An imprint of ionospheric winds on Radiation Belts, LASP Friends of the Magnetosphere Seminar, **Boulder, CO**, Feb 2016.
2. "The zebra stripes": An imprint of ionospheric winds on Radiation Belts, Space Physics Seminar, University of California, **Berkeley, CA**, Jan 2016.
3. *Radial diffusion, stochastic transport, and non-diffusive process in the radiation belts and slot region: A Tutorial*, IWEPPNES, **Paris, France**, May 2015.
4. *Contribution of a scale changing technique to the characterization of radial diffusion*, APL/JPU, **Laurel, MD**, Oct 2014.
5. *Contribution of a scale changing technique to the characterization of radial diffusion*, Space Physics Seminar, University of California, **Berkeley, CA**, Mar 2014.
6. *Radial diffusion modeling: a key step in the description of the radiation belt dynamics*, Research Institute in Astrophysics and Planetology, **Toulouse, France**, Oct 2012.
7. *Investigation of the characteristic energy of auroral electrons based on ALIS observations*, Swedish Institute of Space Physics, **Kiruna, Sweden**, Jul 2009.

TALKS AND POSTER SESSIONS

1. *What Can Be Learned from the Van Allen Probe Measurements of the Electric Drift $E \times B/B^2$ in the Inner Magnetosphere?*, S. Lejosne and F. Mozer, AGU Fall Meeting, San Francisco, California, Dec 2016, (invited talk)

2. *Typical values of the electric drift below $L \sim 3$ as determined from Van Allen Probe measurements*, S. Lejosne and F. Mozer, SWG Meeting, Baltimore, MD, Oct 2016 (talk)
3. *Modulations of the electric drift below $L \sim 3$ due to the ionosphere dynamo*, S. Lejosne and F. Mozer, GEM-CEDAR, Jun 2016 (talk)
4. *Van Allen Probe measurements of the electric drift ExB/B^2 at Arecibo's $L = 1.4$ field line coordinate*, GEM-CEDAR, Jun 2016 (poster)
5. *Measurements of the ExB drift below $L \sim 3$* , S. Lejosne and F. Mozer, SWG meeting, Baltimore, MD, Apr 2016 (talk)
6. *Field-Aligned Electron Events Observed in the Radiation Belts by the HOPE instruments aboard the Van Allen Probes*, S. Lejosne, O. Agapitov and F. Mozer, AGU Fall Meeting, San Francisco, California, Dec 2015 (poster)
7. *A statistical study of field-aligned electron events*, S. Lejosne, F. Mozer and O. Agapitov, SWG meeting, Baltimore, MD, Jul 2015 (talk)
8. *Multiple Observations of auroral brightening in conjunction with keV-field aligned electrons and time domain structures in the outer radiation belt*, S. Lejosne, O. Agapitov, H. Frey and F. Mozer, GEM meeting, Jun 2015 (poster)
9. *The role of Time-domain structures in precipitating electrons: Conjugate measurements by Van Allen Probes, THEMIS, and the North-American array of all-sky imagers*, S. Lejosne, F. Mozer and O. Agapitov, IMC III Meeting, UCLA, CA, Mar 2015 (talk)
10. *Two Step Acceleration Process of Electrons in the Outer Van Allen Radiation Belt by Time Domain Electric Field Bursts and Large Amplitude Chorus Wave*, Agapitov, O., Mozer, F.S., Artemyev, A., Kranoselskikh, V and S. Lejosne, AGU Fall Meeting, San Francisco, California, Dec 2014 (talk)
11. *The role of time-domain structures in precipitating electrons: conjugate measurements by Van Allen Probes and the Canadian array of all-sky imagers*, Lejosne S., Mozer, F.S., Agapitov, O., AGU Fall Meeting, San Francisco, California, Dec 2014 (poster)
12. *Quel est le rôle des champs électriques induits dans la dynamique des ceintures de radiation terrestres*, Lejosne, S., PNST 2014, Sète, France, Feb 2014 (talk)
13. *Deriving radiation belt electromagnetic radial diffusion coefficients based on Van Allen Probes*, Lejosne S., Boscher D., Maget V. and Rolland G., GEM, Snowmass, Colorado, Jun 2013 (talk)
14. *A two-point sampling method for a new derivation of electromagnetic radial diffusion coefficients*, Lejosne S., Boscher D., Maget V. and Rolland G., GEM, Snowmass, Colorado, Jun 2013 (poster)
15. *Modeling of the radial diffusion process*, Lejosne S., Boscher D. and Maget V., PNST 2012, La Londe-les-Maures, France, Mar 2012 (poster)
16. *Radial diffusion modeling*, Lejosne S., Boscher D. and Maget V., IMC II, Los Angeles, California, Mar 2012 (poster)

MEDIA PRESENCE

Blogpost for French literature website: *Salammbô, un nom de l'espace* (2015)

- Published [an article](#) for the website dedicated to the French author Gustave Flaubert, operated by the University of Rouen, France
- Drew a parallel between the approach of Flaubert in his novel *Salammbô* vs. radiation belt modeling

Public presentation at the Toulouse Museum : *Couvrez-vous ! Orage magnétique attendu* (2013)

- 1 hour discussion about radiation belts, thesis work and scientific research
- [Interview](#) with newspaper *La Dépêche*

Digital Presence

- Personal website (solenelejosne.com)
- [@SoleneLejosne](#) on Twitter
- [Solène Lejosne](#) on LinkedIn
- [Research Gate](#)
- [ORCID](#) iD: 0000-0003-4238-8579

AWARDS

- **Best thesis award** by the foundation ISAE-SUPAERO, 2014
- Young scientist award for **best communication skills**, French Space Agency (CNES), 2012
- Special congratulations of the jury for **best research internship** (top 10% out of 500 students), 2009
- 3rd prize of the École Polytechnique for the **best group science project**, *Modeling of boomerang flights*, 2008

LANGUAGES

- **English** – Full professional proficiency
- **French** – Native
- **Spanish** – Limited working proficiency, volunteered at the Guadalajara zoo in México (Summer 2008)
- **Computer languages & packages**: IDL, FORTRAN, MATLAB