Curriculum Vitae

Dr. Victor Réville

IRAP, Université Toulouse III - Paul Sabatier, CNRS, CNES, Toulouse, France,
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(a) Education

- 2016, Université Sorbonne Paris Cité / Paris 7, AIM Département d'Astrophysique CEA/IRFU/DAp; Astronomy & Astrophysics; Ph.D.
- 2013, Université Versailles Saint-Quentin, Paris Saclay; Simulation and Modeling for physical sciences; Master's degree.
- 2013, ENSTA Paris; Applied Mathematics; Engineering degree.

(b) Appointments

- November 2022 – Present, **CNRS Researcher**, IRAP, Toulouse, France
- July 2019–October 2022: **Postdoctoral Researcher**, Institut de Recherche en Astrophysique et Planétologie (IRAP), Toulouse, France
- July 2017–June 2019: **Postdoctoral Researcher**, UCLA EPSS, Los Angeles, CA
- Oct. 2016–June 2017: **Postdoctoral Researcher**, AIM Département d'Astrophysique CEA/IRFU/DAp, Paris, France

(c) Research Interests

Dr Réville's research focuses on astrophysical plasma physics. He is particularly interested in the structure of magnetized solar and stellar coronae and astrospheres and has -during his PhD- studied their characteristics and evolution along the main sequence. He has then been working with M. Velli, Observatory Scientist for the Parker Solar Probe, in UCLA to develop model of the acceleration of the solar wind and compare them with ongoing observations. He is now continuing his works in Toulouse as a CNRS Researcher. His research makes use of heavy numerical MHD simulations as well as analytical developments and comparison to remote and in-situ data.

(d) Collaborations

- Parker Solar Probe
- Solar Orbiter
- HelioSwarm

(e) Synergistic Activities

1. **Reviews:** ApJ, A & A, MNRAS, Nature Astronomy
2. **Guest Editor:** Frontiers in Astronomy and Space Sciences
3. **Teaching:**
   2022-Now, Space Weather course at Université de Toulouse, Paul Sabatier
   2013-2016, TA in computer sciences for bachelor students.

4. **Supervision:**
   2024-2027, Graduate Student and Postdoc: T. Vergé, R. Sukarmadji (IRAP)
   2021-2024, Graduate Students: B. Gannouni, P. Lomazzi (IRAP)
   2016-17, Master student: M. Benbakoura (CEA/AIM)
5. **Colloquia:**
   2023, LOC member of the LOC for the European Space Weather Week
   2020, LOC member for the Cool Stars 21 conference

(f) Grants & Awards

- 2024-2027, ANR research grant, project SOLSTICES (300 k€)
- 2020-2025, GENCI High Performance Computing Research Allocation (PI, 2.5 M CPU-hours/yr, 30k€/yr).
- 2020, Early Career Prize from the Solar Physics Division of the European Physical Society.
- 2018-20, NSF/XSEDE High Performance Computing Research Allocation (PI, 500k CPU-hours/yr)

(g) Computing skills

1. **Production:** Unix/C/C++/Fortran
2. **Parallel computing and HPC:** MPI/OpenMP/Kokkos
3. **Analysis:** Python/IDL/Visit

(h) Languages

- French : Mother Tongue
- English : Fluent
- Spanish : Good
- Arabic : Notions

(i) Publication List (selection)

60 papers total (1796 citations), 11 as first author (567 citations), H-index: 24. See the full list here.

1. 2023, ***V. Réville**, N. Poirier, A. Kouloumvakos, A.P Rouillard et al.*, JSWSC, Volume 13,
   HelioCast: heliospheric forecasting based on white-light observations of the solar corona

2. 2022, *C. Shi, M. Velli, S. Bale, **V. Réville**, M. Maksimovic, J-B Dakeyo*, Physics of Plasmas Vol. 29, honoring the memory of E. Parker,
   Acceleration of polytropic solar wind: Parker Solar Probe observation and one-dimensional model

3. 2022, *A. Strugarek, R. Fares, V. Bourrier, A.S Brun, **V. Réville** et al.*, MNRAS, Volume 512,
   MOVES - V. Modelling star-planet magnetic interactions of HD 189733

4. 2022, *S. Parenti, **V. Réville**, A.S. Brun, R.F. Pinto, F. Auchère, É. Buchlin, B. Perri, A. Strugarek*, The Astrophysical Journal, Volume 929,
   Validation of a Wave Heated 3D MHD Coronal-wind Model using Polarized Brightness and EUV Observations

5. 2022, ***V. Réville**, N. Fargette, A.P. Rouillard, B. Lavraud, M. Velli, A. Strugarek, S. Parenti, A.S. Brun, C. Shi,* **PSP** *&* **Solar Orbiter Teams**, Astronomy and Astrophysics, Volume 659
   Flux ropes and dynamics of the heliospheric current sheet

6. 2021, *N. Fargette, A. Rouillard, B. Lavraud, **V. Réville** &* **PSP Teams**, The Astrophysical Journal, Volume 919
   Characteristic Scales of Magnetic Switchback Patches Near the Sun and Their Possible Association With Solar Supergranulation and Granulation

7. 2021, ***V. Réville**, A.P. Rouillard, M. Velli, A. Verdini, É. Buchlin, M. Lavarra, N. Poirier*, Frontiers in Astronomy and Space Sciences, Volume 8
   Investigating the origin of the FIP effect with a shell turbulence model

8. 2020, *B. Perri, A.S. Brun, A. Strugarek,* **V. Réville**, SWSC Volume 10
   Impact of solar magnetic field amplitude and geometry on cosmic rays diffusion coefficients in the inner heliosphere

9. 2020, *A.J. Finley, S.P. Matt, **V. Réville**, R.F. Pinto, M. Owens &* **PSP Teams**, The Astrophysical Journal, Volume 902
   The Solar Wind Angular Momentum Flux as Observed by Parker Solar Probe

10. 2020, *M. Shoda, T. K. Suzuki, S. P. Matt, S. R. Cranmer, A. A. Vidotto, A. Strugarek, V. See, **V. Réville**, A. J. Finley, and A. S. Brun*, The Astrophysical Journal, Volume 896
    Alfvén-wave-driven Magnetic Rotator Winds from Low-mass Stars. I. Rotation Dependences of Magnetic Braking and Mass-loss Rate

11. 2020, ***V. Réville**, M. Velli, A.P. Rouillard, B. Lavraud, A. Tenerani, C. Shi, A. Strugarek*, ApJ Letters, Volume 895, L20
    Tearing Instability and Periodic Density Perturbations in the Slow Solar Wind

12. 2020, *B. Lavraud, N. Fargette, **V. Réville**, A. Szabo, J. Huang, A.P. Rouillard &* **PSP Teams**, ApJ Letters, Volume 894,
    The Heliospheric Current Sheet and Plasma Sheet during Parker Solar Probe's First Orbit

13. 2020, *O. Panasenco, M.Velli, R. d'Amicis, C. Shi,* ***V. Réville*** *&* **PSP Teams**, ApJS, Volume 246, page 54
Exploring solar wind origins and connecting plasma flows from Parker Solar Probe to 1 AU: non-spherical source surface and Alfvénic fluctuations

14. 2020, *A. Tenerani, M. Velli, L. Matteini,* ***V. Réville****, C. Shi &* **PSP Teams**, ApJS, Volume 246, page 32,
Magnetic field kinks and folds in the solar wind

15. 2020, ***V. Réville****, M. Velli, O. Panasenco, A. Tenerani, C. Shi, S. T. Badman &* **PSP Teams**, ApJS, Volume 246, page 24
The role of Alfvén wave dynamics on the large scale properties of the solar wind: comparing an MHD simulation with PSP E1 data

16. 2020, *C. Shi, M. Velli, A. Tenerani, F. Rappazzo,* ***V. Réville***, The Astrophysical Journal Volume 888,
Propagation of Alfvén waves in the expanding solar wind with the fast-slow stream interaction

17. 2019, *A. Strugarek, A.S. Brun, J. -F Donati, C. Moutou;* ***V. Réville***, The Astrophysical Journal, Volume 881,
Chasing Star-Planet Magnetic Interactions: The Case of Kepler-78

18. 2019, *M. Benbakoura, V. Réville, A. S. Brun, C. Le Poncin-Lafitte, S. Mathis*, Astronomy & Astrophysics, Volume 621, A124
Evolution of star-planet systems under magnetic braking and tidal interaction

19. 2018, *B. Perri, A. S. Brun,* ***V. Réville****, A. Strugarek*, Journal of Plasma Physics, Volume 84, Issue 5 on Space Weather
Simulations of solar wind variations during an 11-year cycle and the influence of north–south asymmetry

20. 2018, *V. Réville, A. Tenerani, M. Velli*, The Astrophysical Journal, Volume 866, page 38
Parametric decay and the origin of the low frequency Alfvénic spectrum of the solar wind

21. 2018, *J. Varela,* ***V. Réville****, A. S. Brun, P. Zarka, F. Pantellini*, Astronomy & Astrophysics, Volume 616
Effect of the exoplanet magnetic field topology on its magnetospheric radio emission

22. 2017, ***V. Réville****, A. S. Brun*, The Astrophysical Journal, Volume 850, page 45
Global solar magnetic field organization in the extended corona: influence on the solar wind speed and mass flux over the cycle

23. 2017, *A. Strugarek, E. Bolmont, S. Mathis, A. S. Brun,* ***V. Réville****, F. Gallet, C. Charbonnel*, The Astrophysical Journal Letters, Volume 847, L16.
The fate of close-in planets: tidal or magnetic migration?

24. 2016, ***V. Réville****, C.P. Folsom, A. Strugarek, A.S. Brun*, The Astrophysical Journal, Volume 832, page 145.
Age dependence of wind properties for solar-like stars: a 3D study

25. 2016, *J. Varela,* ***V. Réville****, A.S. Brun, F. Pantellini, P. Zarka*, Astronomy and Astrophysics, Volume 595, A69.
Radio emission in Mercury magnetosphere

26. 2015, *A. Strugarek, A.S. Brun, S.P. Matt,* ***V. Réville***, The Astrophysical Journal, Volume 815, page 111.
Magnetic Games between a Planet and Its Host Star: The Key Role of Topology

27. 2015, ***V. Réville****, A.S. Brun, A. Strugarek, S.P. Matt, J. Bouvier, C. P. Folsom, P. Petit*, The Astrophysical Journal, Volume 814, page 99.
From Solar to Stellar Corona: The Role of Wind, Rotation and Magnetism

28. 2015, *B. Ritter, A. J. H. Meskers, O. Miles, M. Rußwurm, S. Scully, A. Roldán, O. Hartkorn, P. Jüstel,* ***V. Réville****, S. Lupu, A. Ruffenach*, Space Weather and Space Climate, Volume 5.
A Space weather information service based upon remote and in-situ measurements of coronal mass ejections heading fotexr Earth. A concept mission consisting of six spacecraft in a heliocentric orbit at 0.72 AU

29. 2015, ***V. Réville****, A.S. Brun, S.P. Matt, A. Strugarek, R. Pinto*, The Astrophysical Journal, Volume 798, page 116.
The Effect of Magnetic Topology on Thermally Driven Wind: Toward a General Formulation of the Braking Law

30. 2014 *A. Strugarek, A.S. Brun, S.P. Matt,* ***V. Réville***, The Astrophysical Journal, Volume 795, page 86.
On the Diversity of Magnetic Interactions in Close-in Star-Planet Systems

(j) Oral Contributions

(j).1 International Meetings

- February 2025, Fiinal SWATnet conference, Helsinki, keynote lecture
- April 2024, EGU GA, Vienna, contributed talk
- June 2023, Solar Wind 16, Monterey CA, USA, contributed talk
- September 2022, Solar Orbiter 8, Belfast, invited talk
- July 2022, COSPAR Assembly, Athens, contributed talk
- June 2021, Parker Solar Probe conference, invited review talk, virtual
- February 2021, COSPAR General Assembly, invited talk, virtual
- December 2020, AGU Fall Meeting, contributed talk, virtual
- December 2019, AGU Fall Meeting, contributed talk, San Francisco, USA
- December 2018, AGU Fall Meeting, contributed talk, Washington D.C., USA
- August 2018, Shine Meeting 2018, contributed talk, Cocoa Beach, FL, USA
- June 2016, Astrofluid, en l'honneur de Pr. Jean Paul Zahn, invited talk, Paris, France
- June 2016, Cool Stars 19, contributed talk (plenary session), Uppsala, Sweden
- August 2015, IAU General Assembly, contributed talk, Hawaii, USA
- June 2014, Cool Stars 18, contributed talk, Flagstaff, USA

(j).2 Seminars

- January 2025, Observatoire de Genève, Switzerland
- Septembre 2022, Research Institute of Astrophysics and Planetology, Toulouse, France
- April 2022, Institute of Planetology and Astrophysics, Grenoble, France
- April 2022, Astrophysics Laboratory, Bordeaux, France
- February 2021, Laboratoire de Physique des Plasmas, Paris, France
- June 2020, Observatoire de la côte d'Azur, Nice, France
- January 2020, Observatoire de Paris, Meudon, France
- May 2019, Jet Propulsion Laboratory, Pasadena, CA, USA
- April 2019, Lockheed Martin Solar Astrophysics Laboratory, Palo Alto, CA, USA
- May 2018, Institut d'Astrophysique Spatiale, Orsay, France
- November 2017, National Astronomical Observatory of Japan, Tokyo, Japan
- September 2017, UCLA Earth Planetary and Space Sciences Department, Los Angeles, USA
- April 2016, Institut de Recherche en Astrophysique et Planétologie, Toulouse, France