

# Tahina RAMIARAMANANTSOA

Postdoctoral Researcher  
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## EDUCATION

- 2012 – 2018 **Ph.D., Astrophysics, Université de Montréal, Canada.**  
- Thesis : Probing the photospheric origins of wind structures in hot luminous stars through high-precision time-resolved space photometry  
- Advisor : Pr. Moffat A. F. J.
- 2011 – 2012 **M.Sc., Astrophysics, Université de Strasbourg/Observatoire de Strasbourg, France.**  
- Thesis : Astrometric properties of cool brown dwarfs discovered by the *Wide-field Infrared Survey Explorer (WISE)*  
- Advisor : Dr. Beichman C. A.
- 2009 – 2012 **M.Sc.Eng., Télécom Physique Strasbourg (TPS), France.**

## EMPLOYMENT

- 2018 – Present **School of Earth and Space Exploration, Arizona State University, Tempe, Arizona, USA**  
- Position : Postdoctoral researcher  
- Role : Development of the software system for the Star-Planet Activity Research CubeSat (SPARCS) mission (Onboard science data processing and detector thermal control software, ground-based data reduction pipeline)
- 2012 – 2017 **Département de Physique, Université de Montréal, Montréal, Canada.**  
- Position : Teaching Assistant (Physics of waves and vibrations, electromagnetism, classical mechanics)
- March – August 2012 **Infrared Processing and Analysis Center (IPAC) – NASA Exoplanet Science Institute (NExSci), Caltech, Pasadena, California, USA.**  
- Position : Research Assistant  
- Research subjects :  
1. Astrometric properties of cool brown dwarfs discovered by *WISE*  
2. Development of Python modules for the analyses of *Kepler* light curves  
- Advisors : Dr. Beichman C. A. and Dr. Plavchan P.
- June – August 2011 **Gemini Observatory - Southern Operations, La Serena, Chile.**  
- Position : Engineering Intern  
- Subject : Analyses and implementation of new remote controllable optical components on the Gemini South Multi-Conjugate Adaptive Optics 50W laser bench  
- Supervisors : Dr. Fesquet V. and Dr. Boccas M.
- July 2010 **Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS), Strasbourg, France.**  
- Position : Research Intern  
- Research subject : Investigating the interactions between proteins and semiconductor nanoparticles using luminescence spectroscopy  
- Supervisor : Dr. Haake S.

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## SEMINARS AND TALKS

### Invited Seminars

- February 2017 **Département de Physique, Université de Montréal, Québec, Canada.**  
La quête des origines photosphériques des structures à grande et à petite échelle dans les vents des étoiles chaudes et très lumineuses
- October 2014 **Observatoire de Meudon, Meudon/Paris, France.**  
Variabilités intrinsèques des étoiles O par photométrie avec le microsatellite *MOST*

### Invited Talks

- October 2021 **Arizona State University AST422 Guest Talk, Tempe, Arizona USA.**  
The Intriguing Optical Light Variability Of An O-Type Star –  $\zeta$  Puppis
- January 2020 **235th Meeting of the American Astronomical Society, Honolulu, Hawai'i USA.**  
The diverse nature of massive star photometric variability uncovered by the BRITE nanosatellites
- September 2019 **Arizona State University AST531 Guest Lecture, Tempe, Arizona USA.**  
Massive stars
- April 2019 **CubeSat Astronomy Workshop, San Luis Obispo, California USA.**  
SPARCS : Star-Planet Activity Research CubeSat
- August 2017 **3rd BRITE-Constellation Science Conference, Québec, Canada.**  
On the photospheric sources of wind structures in hot luminous O-type stars

### Contributed Talks

- August 2021 **SmallSat Conference 2021, Virtual.**  
Dynamically Controlling Image Integration Onboard The Star-Planet Activity Research CubeSat (SPARCS)
- July 2021 **BRITE and BRITE-Related Science Meeting, Virtual.**  
How BRITE Has Revolutionized What We Know About A Key O-Star
- June 2021 **XMM-Newton Workshop 2021, A High-Energy View of Exoplanets and their Environments, Virtual.**  
Time-Resolved Photometry Of The High-Energy Radiation Of M Dwarfs With The Star-Planet Activity Research CubeSat
- May 2021 **Stars and Planets in the Ultraviolet, Virtual.**  
Photometric Monitoring Of M Dwarf UV Flaring With The Star-Planet Activity Research CubeSat (SPARCS)
- January 2021 **237th Meeting of the American Astronomical Society, Virtual.**  
An Automated Onboard Image Integration Control for the Star-Planet Activity Research CubeSat
- January 2020 **235th Meeting of the American Astronomical Society, Honolulu, Hawai'i USA.**  
M dwarf activity and flaring in the ultraviolet domain with the Star-Planet Activity Research CubeSat (SPARCS)
- May 2017 **Annual meeting of the Centre de Recherche en Astrophysique du Québec, Québec, Canada.**  
The spotted surface of HAT-P-11
- August 2016 **2nd BRITE-Constellation Science Conference "small satellites - big science", Innsbruck, Austria.**  
A BRITE view on the hot early-O-type supergiant  $\zeta$  Puppis : Probing the photospheric drivers of its large-scale wind structures

- April 2016 **Annual meeting of the Centre de Recherche en Astrophysique du Québec, Québec, Canada.**  
 $\zeta$  Puppis [O4I(n)fp] : Probing the photospheric drivers of its large-scale wind structures
- October 2015 **BRITE Spectropolarimetric Survey workshop, Meudon/Paris, France.**  
 $\zeta$  Puppis [O4I(n)fp] : Unravelling the link between its CIRs and their photospheric origin
- September 2015 **Science with BRITE-Constellation : Initial Results, Gdansk, Poland.**  
 BRITE photometry of OB supergiants/giants
- May 2015 **Annual meeting of the Centre de Recherche en Astrophysique du Québec, Québec, Canada.**  
 BRITE photometry of  $\zeta$  Orionis
- September 2014 **Magnetism and Variability of O Stars, Amsterdam, The Netherlands.**  
 Intrinsic variability of O stars through high-precision photometry
- May 2014 **Annual meeting of the Centre de Recherche en Astrophysique du Québec, Québec, Canada.**  
 Intrinsic variability of O stars through space photometry
- May 2013 **Annual meeting of the Centre de Recherche en Astrophysique du Québec, Québec, Canada.**  
 Detection of corotating hot spots on an O star : The case of  $\xi$  Persei [O7.5III(n)((f))]

## TELESCOPE TIME AS PI

OBSERVATORY	TELESCOPE	INSTRUMENT	ALLOCATION
SAAO [South-Africa]	1.9 m	GIRAFFE	14 nights
CTIO [Chile]	SMARTS 1.5 m	Chiron	4 nights
CTIO [Chile]	SMARTS 1.5 m	Chiron	2.7 nights
MOST [Canada (space)]	15 cm	Photometer	36 days
OMM [Canada]	1.6 m	Long-slit spectrograph	9 nights

## SCHOLARSHIPS

- 2020 **AAS FAMOUS Travel Grant (USD 0.5K)**, American Astronomical Society, USA.
- 2012–2015 **Doctoral Scholarship – Flights and Fieldwork for the Advancement of Science and Technology (FAST ; CAD 60K)**, Canadian Space Agency, Canada.
- 2009–2010 **The Blanc-Mesnil Foundation Scholarship (EUR 20K)**, French Academy of Science, France.
- 2007–2009 **The Odon Vallet Foundation Scholarship (EUR 25K)**, France.

## COMPUTER SKILLS

OS	Mac OS X, Linux, Windows	Programming	Python, C/C++, IDL, Matlab
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## LANGUAGES

English	Fluent	Malagasy	Native
French	Fluent	German	Basic user

## OTHER INTERESTS

- Flamenco, Guitar
- Watercolor painting
- Soccer, Cycling, Hiking

## ■ REFEREED PUBLICATIONS

***h*-index : 11 ; *i10*-index : 13**

[21] **Ramiaramanantsoa, T.**; Bowman, J. D.; Shkolnik, E. L.; Loyd, R. O. P.; Ardila, D. R.; Jewell, A.; Barman, T.; Basset, C.; Beasley, M.; Cheng, S.; Gamaunt, J.; Gorjian, V.; Hennessy, J.; Jacobs, D.; Jensen, L.; Knapp, M.; Llama, J.; Meadows, V.; Nikzad, S.; Peacock, S.; Scowen, P.; Swain, M. R., **2021, arXiv, arXiv :2111.10322**

*Onboard Dynamic Image Exposure Control for the Star-Planet Activity Research CubeSat (SPARCS)*

[20] **Ramiaramanantsoa, T.**; Bowman, J. D.; Shkolnik, E. L.; Loyd, R. O. P.; Ardila, D. R.; Barman, T.; Basset, C.; Beasley, M.; Cheng, S.; Gamaunt, J.; Gorjian, V.; Jacobs, D.; Jensen, L.; Jewell, A.; Knapp, M.; Llama, J.; Meadows, V.; Nikzad, S.; Peacock, S.; Scowen, P.; Swain, M. R., **2021, Astron. Nachr., 1.**

*Time-resolved photometry of the high-energy radiation of M dwarfs with the Star-Planet Activity Research CubeSat*

[19] Weiss, W. W.; Zwintz, K.; Kuschnig, R.; Handler, G.; Moffat, A. F. J.; Baade, D.; Bowman, D. M.; Granzer, T.; Kallinger, T.; Koudelka, O. F.; Lovekin, C. C.; Neiner, C.; Pablo, H.; Pigulski, A.; Popowicz, A.; **Ramiaramanantsoa, T.**; Rucinski, S. M.; Strassmeier, K. G.; Wade, G. A., **2021, Universe, 7, 199**

*Space Photometry with BRITE-Constellation*

[18] Nichols, J. S.; Nazé, Y.; Huenemoerder, D. P.; Moffat, A. F. J.; Miller, N.; Lauer, J.; Ignace, R.; Gayley, K.; **Ramiaramanantsoa, T.**; Oskina, L.; Hamann, W-R.; Richardson, N. D.; Waldron, W. L.; Dahmer, M., **2021, ApJ, 906, 89**

*Correlated X-ray and optical variability in the O-type supergiant  $\zeta$  Puppis*

[17] **Ramiaramanantsoa, T.**; Ignace, R.; Moffat, A. F. J.; St-Louis, N.; Shkolnik, E. L.; Popowicz, A.; Kuschnig, R.; Pigulski, A.; Wade, G. A.; Handler, G.; Pablo, H.; Zwintz, K., **2019, MNRAS, 490, 5921–5930**

*The chaotic wind of WR 40 as probed by BRITE*

[16] **Ramiaramanantsoa, T.**; Ratnasingam, R.; Shenar, T.; Moffat, A. F. J.; Rogers, T. M.; Popowicz, A.; Kuschnig, R.; Pigulski, A.; Handler, G.; Wade, G. A.; Zwintz, K.; Weiss, W. W., **2018, MNRAS, 480, 972–986**

*A BRITE view on the massive O-type supergiant V973 Scorpii : hints towards internal gravity waves or sub-surface convection zones*

[15] Nazé, Y.; **Ramiaramanantsoa, T.**; Stevens, I. R.; Howarth, I. D.; Moffat, A. F. J., **2017, A&A, 609, A81**

*A detailed X-ray investigation of  $\zeta$  Puppis IV. Further characterization of the variability*

[14] **Ramiaramanantsoa, T.**; Moffat, A. F. J.; Harmon, R.; Ignace, R.; St-Louis, N.; Vanbeveren, D.; Shenar, T.; Pablo, H.; Richardson, N. D.; Howarth, I. D.; Stevens, I. R.; Piaulet, C.; St-Jean, L.; Eversberg, T.; Pigulski, A.; Popowicz, A.; Kuschnig, R.; Zocłońska, E.; Buyschaert, B.; Handler, G.; Weiss, W. W.; Wade, G. A.; Rucinski, S. M.; Zwintz, K.; Luckas, P.; Heathcote, B.; Cacella, P.; Powles, J.; Locke, M.; Bohlsen, T.; Chené, A.-N.; Miszalski, B.; Waldron, W. L.; Kotze, M. M.; Kotze, E. J.; Böhm, T., **2018, MNRAS, 473, 5532–5569**

*BRITE-Constellation high-precision time-dependent photometry of the early-O-type supergiant  $\zeta$  Puppis unveils the photospheric drivers of its small- and large-scale wind structures*

[13] Richardson, N. D.; Russell, C. M. P.; St-Jean, L.; Moffat, A. F. J.; St-Louis, N.; Shenar, T.; Pablo, H.; Hill, G. M.; **Ramiaramanantsoa, T.**; Corcoran, M.; Hamuguchi, K.; Eversberg, T.; Miszalski, B.; Chené, A.-N.; Waldron, W.; Kotze, E. J.; Kotze, M. M.; Luckas, P.; Cacella, P.; Heathcote, B.; Powles, J.; Bohlsen, T.; Locke, M.; Handler, G.; Kuschnig, R.; Pigulski, A.; Popowicz, A.; Wade, G. A.; Weiss, W. W., **2017, MNRAS, 471, 2715–2729**

*The variability of the BRITE-est Wolf-Rayet binary,  $\gamma^2$  Velorum-I. Photometric and spectroscopic evidence for colliding winds*

[12] Popowicz, A.; Pigulski, A.; Bernacki, K.; Kuschnig, R.; Pablo, H.; **Ramiaramanantsoa, T.**; Zocłonska, E.; Baade, D.; Handler, G.; Moffat, A. F.; Wade, G. A.; Neiner, C.; Rucinski, S. M.; Weiss, W. W.; Koudelka, O.; Orleanski, P.; Schwarzenberg-Czerny, A.; Zwintz, K., **2017, A&A, 605, A26**

*BRITE-Constellation : Data processing and photometry*

[11] Buyschaert, B.; Neiner, C.; Richardson, N. D.; **Ramiaramanantsoa, T.**; David-Uraz, A.; Pablo, H.; Oksala, M. E.; Moffat, A. F. J.; Mennickent, R. E.; Legeza, S.; Aerts, C.; Kuschnig, R.; Whittaker, G. N.; Popowicz, A.; Handler, G.; Wade, G. A.; Weiss, W. W., **2017, A&A, 602A, 91**

*Studying the photometric and spectroscopic variability of the magnetic hot supergiant  $\zeta$  Ori Aa*

[10] Munoz, M.; Moffat, A. F. J.; Hill, G. M.; Shenar, T.; Richardson, N. D.; Pablo, H.; St-Louis, N.; **Ramiaramanantsoa, T.**, **2017, MNRAS, 467, 3105–3121**

*WR 148 : identifying the companion of an extreme runaway massive binary*

[9] Pablo, H.; Richardson, N. D.; Fuller, J.; Rowe, J.; Moffat, A. F. J.; Kuschnig, R.; Popowicz, A.; Handler, G.; Neiner, C.; Pigulski, A.; Wade, G. A.; Weiss, W.; Buyschaert, B.; **Ramiaramanantsoa, T.**; Bratcher, A. D.; Gerhartz, C. J.; Greco, J. J.; Hardegree-Ullman, K.; Lembryk, L.; Oswald, W. L., **2017, MNRAS, 467, 2494–2503**

*The most massive heartbeat : an in-depth analysis of  $\iota$  Orionis*

[8] Handler, G.; Rybicka, M.; Popowicz, A.; Pigulski, A.; Kuschnig, R.; Zocłońska, E.; Moffat, A. F. J.; Weiss, W. W.; Grant, C. C.; Pablo, H.; Whittaker, G. N.; Ruciński, S. M.; **Ramiaramanantsoa, T.**; Zwintz, K.; Wade, G. A., **2017, MNRAS, 464, 2249–2258**

*Combining BRITE and ground-based photometry for the  $\beta$  Cephei star  $\nu$  Eridani : impact on photometric pulsation mode identification and detection of several g modes*

[7] Pablo, H. ; Whittaker, G. N. ; Popowicz, A. ; Mochnacki, S. M. ; Kuschnig, R. ; Grant, C. C. ; Moffat, A. F. J. ; Rucinski, S. M. ; Matthews, J. M. ; Schwarzenberg-Czerny, A. ; Handler, G. ; Weiss, W. W. ; Baade, D. ; Wade, G. A. ; Zocłowska, E. ; **Ramiaramanantsoa, T.** ; Unterberger, M. ; Zwintz, K. ; Pigulski, A. ; Rowe, J. ; Koudelka, O. ; Orleański, P. ; Pamyatnykh, A. ; Neiner, C. ; Wawrzaszek, R. ; Marcinişzyn, G. ; Romano, P. ; Woźniak, G. ; Zawistowski, T. ; Zee, R. E., **2016, PASP, 1281, 5001–5020**

*The BRITE Constellation Nanosatellite Mission : Testing, Commissioning, and Operations*

[6] Richardson, N. D. ; Shenar, T. ; Roy-Loubier, O. ; Schaefer, G. ; Moffat, A. F. J. ; St-Louis, N. ; Gies, D. R. ; Farrington, C. ; Hill, G. M. ; Williams, P. M. ; Gordon, K. ; Pablo, H. ; **Ramiaramanantsoa, T.**, **2016, MNRAS, 461, 4115–4124**

*The CHARA Array resolves the long-period Wolf-Rayet binaries WR 137 and WR 138*

[5] Aldoretta, E. J. ; St-Louis, N. ; Richardson, N. D. ; Moffat, A. F. J. ; Eversberg, T. ; Hill, G. M. ; Shenar, T. ; Artigau, É. ; Gauza, B. ; Knapen, J. H. ; Kubát, J. ; Kubátová, B. ; Maltais-Tariant, R. ; Muñoz, M. ; Pablo, H. ; **Ramiaramanantsoa, T.** ; Richard-Laferrrière, A. ; Sablowski, D. P. ; Simón-Díaz, S. ; St-Jean, L. ; Bolduan, F. ; Dias, F. M. ; Dubreuil, P. ; Fuchs, D. ; Garrel, T. ; Grutzeck, G. ; Hunger, T. ; Küsters, D. ; Langenbrink, M. ; Leadbeater, R. ; Li, D. ; Lopez, A. ; Mauclaire, B. ; Moldenhawer, T. ; Potter, M. ; dos Santos, E. M. ; Schanne, L. ; Schmidt, J. ; Sieske, H. ; Strachan, J. ; Stinner, E. ; Stinner, P. ; Stober, B. ; Strandbaek, K. ; Syder, T. ; Verilhac, D. ; Waldschläger, U. ; Weiss, D. ; Wendt, A., **2016, MNRAS, 460, 3407–3417**

*An extensive spectroscopic time series of three Wolf-Rayet stars - I. The lifetime of large-scale structures in the wind of WR 134*

[4] Pigulski, A. ; Cugier, H. ; Popowicz, A. ; Kuschnig, R. ; Moffat, A. F. J. ; Rucinski, S. M. ; Schwarzenberg-Czerny, A. ; Weiss, W. W. ; Handler, G. ; Wade, G. A. ; Koudelka, O. ; Matthews, J. M. ; Mochnacki, S. ; Orleański, P. ; Pablo, H. ; **Ramiaramanantsoa, T.** ; Whittaker, G. ; Zocłowska, E. ; Zwintz, K., **2016, A&A, 588A, 55**

*Massive pulsating stars observed by BRITE-Constellation. I. The triple system  $\beta$  Centauri (Agena)*

[3] Weiss, W. W. ; Fröhlich, H.-E. ; Pigulski, A. ; Popowicz, A. ; Huber, D. ; Kuschnig, R. ; Moffat, A. F. J. ; Matthews, J. M. ; Saio, H. ; Schwarzenberg-Czerny, A. ; Grant, C. C. ; Koudelka, O. ; Lüftinger, T. ; Rucinski, S. M. ; Wade, G. A. ; Alves, J. ; Guedel, M. ; Handler, G. ; Mochnacki, S. ; Orleanski, P. ; Pablo, B. ; Pamyatnykh, A. ; **Ramiaramanantsoa, T.** ; Rowe, J. ; Whittaker, G. ; Zawistowski, T. ; Zocłowska, E. ; Zwintz, K., **2016, A&A, 588A, 54**

*The roAp star  $\alpha$  Circinus as seen by BRITE-Constellation*

[2] Richardson, N. D. ; Moffat, A. F. J. ; Maltais-Tariant, R. ; Pablo, H. ; Gies, D. R. ; Saio, H. ; St-Louis, N. ; Schaefer, G. ; Miroshnichenko, A. S. ; Farrington, C. ; Aldoretta, E. J. ; Artigau, É. ; Boyajian, T. S. ; Gordon, K. ; Jones, J. ; Matson, R. ; McAlister, H. A. ; O'Brien, D. ; Raghavan, D. ; **Ramiaramanantsoa, T.** ; Ridgway, S. T. ; Scott, N. ; Sturmman, J. ; Sturmman, L. ; Brummelaar, T. t. ; Thomas, J. D. ; Turner, N. ; Vargas, N. ; Zharikov, S. ; Matthews, J. ; Cameron, C. ; Guenther, D. ; Kuschnig, R. ; Rowe, J. ; Rucinski, S. ; Sasselov, D. ; Weiss, W., **2014, MNRAS, 455, 244–257**

*Spectroscopy, MOST photometry, and interferometry of MWC 314 : is it an LBV or an interacting binary ?*

[1] **Ramiaramanantsoa, T.**; Moffat, A. F. J.; Chené, A.-N.; Richardson, N. D.; Henrichs, H. F.; Desforges, S.; Antoci, V.; Rowe, J. F.; Matthews, J. M.; Kuschnig, R.; Weiss, W. W.; Sasselov, D.; Rucinski, S. M.; Guenther, D. B., **2014, MNRAS, 441, 910–917**  
*MOST detects corotating bright spots on the mid-O-type giant  $\xi$  Persei*