

# Alexis Lavail

PHD STUDENT IN ASTRONOMY



## + CONTACT INFORMATION

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## + RESEARCH EXPERIENCE

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- 2013–present Uppsala (Sweden) **PhD student in astronomy at Uppsala University**  
Thesis title "*Magnetic fields of cool stars from near-infrared spectropolarimetry*"  
Supervisors: Oleg Kochukhov, Nikolai Piskunov, Gaitee Hussain  
Planned defense date: April/May 2020 · Licentiate degree passed: May 2019  
Measuring the magnetic fields of pre main-sequence stars and M-dwarfs from high-resolution near-infrared spectroscopy and optical spectropolarimetry.  
Instrumentation work on the polarimeter unit for CRIRES+: I participated in the design, testing, and integration of the spectropolarimeter and will participate in instrument commissioning.  
One year of the PhD spent at ESO through a studentship, working on several near-infrared spectroscopy projects and participating in diverse CRIRES+ activities.
- 2013, 4 months Noordwijk (Netherlands) **Stagiaire at European Space Agency ESTEC**  
"*Validation and calibration of the descent camera for the Exomars Entry and Descent Module*".  
De-facto instrument team manager. Planning, budgeting and realisation of EMC, vibrational, and electrical testing, Planetary Protection cleaning; redaction of test plans, procedures and reports.
- 2012, 2 months Uppsala (Sweden) **Master degree research project at Uppsala University**  
"*Spectropolarimetric analysis of the massive star HD 176582*".

## + EDUCATION

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- 2013 **Master degree in astronomical and space-based engineering**  
Observatoire de Paris. Paris, Meudon, Orsay (France)
- 2011 **Bachelor degree in physics**  
Université Paul Cézanne. Marseille (France)

## + LANGUAGES

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French: native    English: fluent    Swedish: conversational    Spanish: conversational

## + COMPUTER SKILLS

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- Programming Experienced developing scientific codes in IDL/GDL, and Python notably with numPy, sciPy, astroPy, pandas, and emcee packages. Good knowledge of bash, familiar with C and Fortran.
- Web/documentation Fluent in HTML5, CSS3, markdown, and git.
- Operating systems Solid knowledge of GNU/Linux, familiar with macOS and Windows

## + ACCEPTED OBSERVING PROPOSALS

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- 2019, 4 hours **Lavail, A.**, Kochukhov, O., and Wade, G. Instrument: ESPaDOnS at CFHT (Hawaii), service mode. *Tracking the unprecedented magnetic evolution of the magnetic field of the active M dwarf AD Leo.*
- 2017, 26 hours **Lavail, A.**, Kochukhov, O., Hussain, G., and Piskunov, N. Instrument: GIANO at TNG (La Palma), visitor mode. *Near-infrared magnetic diagnostics for cool low-mass active stars.*
- 2016, 23 hours **Lavail, A.**, Wade, G., Kochukhov, O. Instrument: ESPaDOnS at CFHT (Hawaii), service mode. *A search for Zeeman linear polarization in spectral lines of active M dwarfs.*

## + GRANTS AND STIPENDS

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- 2018, 30 000 SEK General announcement for Astronomy and space science from KVA (Royal Academy of Sciences). Project: *Organization of a joint workshop for PhD student in astronomy and space physics at Stockholm and Uppsala Universities.*
- 2018, 38 000 SEK Liljewalch resestip from C.F. Liljewalchs stipendiestiftelse. Project: *Research visit at Université de Montpellier, attendance to Cool Stars 20 and SunStars school*
- 2017, 3 000 € ESO Director General Discretionary Funding (PI: Gaitée Hussain). Project: *2-month research visit at the European Southern Observatory HQ in Garching.*
- 2015, 18 000 € 1-year PhD studentship at the European Southern Observatory

## + SERVICE AND DUTIES

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### Conference organization

- 2020 **Rencontres OSAE 2020** (French astro/space engineering alumni meeting). Observatoire de Paris-Meudon (France). Co-organizer.
- 2019 **Uppsala/Stockholm astronomy PhD workshop**. Norreda Torp (Sweden). 20+ participants. Main organizer.
- 2016 **Cool Stars 19**. Uppsala (Sweden). 450+ participants. Co-main organizer.
- 2016 **Rencontres OSAE 2016** (French astro/space engineering alumni meeting). Observatoire de Paris-Meudon (France). 100+ participants. Co-main organizer
- 2015 **Astronomdagarna 2015**. Uppsala (Sweden), 100+ participants. Co-organizer

### Duties & outreach

- 2016-present Design of **printed/online posters** for outreach astronomy events
- 2014-2018 Responsible for the **astronomy division webpages** at Uppsala University
- 2015-2017 PhD representative at the astronomy division council at Uppsala University

## + RECENT CONFERENCE PRESENTATIONS

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Full list of presentations and seminars at [aalex.is/appearances](http://aalex.is/appearances)

- Oct 2019 Poster presentation at Astronomdagarna 2019, Stockholm (Sweden)
- Jun 2019 Contributed talk at STARRY final conference, Leeds (United Kingdom)
- Jul 2018 Poster presentation at Cool Stars 20, Boston, MA (United States of America)
- Sep 2017 Contributed talk and poster presentation at Astronomdagarna 2017, IRF Kiruna (Sweden)

## + INTERESTS

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inclusiveness and equal opportunities in science, hiking, bouldering, cross-country skiing, beer-brewing, baking, climate justice, world literature and music, science-fiction, web and poster design, data visualization, typography ...

## + PUBLICATION LIST

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### Refereed publications

- [4] **Lavail, A.**, Kochukhov, O., Hussain, G.: *Characterising the surface magnetic fields of T Tauri stars with high-resolution near-infrared spectroscopy*, 2019, A&A, 630, A99
- [3] **Lavail, A.**, Kochukhov, O., Wade, G. A.: *A sudden change of the global magnetic field of the active M dwarf AD Leo revealed by full Stokes spectropolarimetric observations*, 2018, MNRAS, 479, 4836L
- [2] **Lavail, A.**, Kochukhov, O., et. al: *Magnetic fields of intermediate mass T Tauri Stars*, 2017, A&A, 608, A77
- [1] Kochukhov, O., **Lavail, A.**: *The global and small-scale magnetic fields of fully convective, rapidly spinning M dwarf pair GJ65 A and B*, 2017, ApJ, 835, L4

### SPIE conference proceedings

- [4] Piskunov N., Stempels, E, **Lavail A.**, et al. (32 coauthors): *A unique infrared spectropolarimetric unit for CRIRES+*, 2018, Proceedings of the SPIE, 10702, 1070234
- [3] Brucalassi A., et al. (37 coauthors incl. **Lavail A.**): *Full system test and early preliminary acceptance Europe results for CRIRES+* , 2018, Proceedings of the SPIE, 10702, 1070239
- [2] Follert R., et al. (34 coauthors incl. **Lavail A.**): *Characterizing the cross dispersion reflection gratings of CRIRES+*, 2016, Proceedings of the SPIE, 9912, 99122B
- [1] Dorn R., et al. (30 coauthors incl. **Lavail A.**): *The "+" for CRIRES: enabling better science at infrared wavelength and high spectral resolution at the ESO VLT*, 2016, Proceedings of the SPIE, 9908, 99080I