

# Stefano Bellotti



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## Current position

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06/2023 - present      Postdoctoral Researcher at Universiteit Leiden Sterrewacht, Leiden, The Netherlands

## Education

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- 2020 - 2023      Ph.D. in Astronomy at the Institut de Recherche en Astrophysique et Planétologie (IRAP), Université Toulouse III - Paul Sabatier, Toulouse, France  
Title: "Searching new worlds with SPIRou: tackling stellar activity"  
Supervisors: Pascal Petit (IRAP), Julien Morin (LUPM), Gaïte Hussain (ESTEC-ESA)
- 2022 - 2023      Visiting researcher at European Science and Technology Research Centre (ESTEC-ESA).
- 2017 - 2019      MSc in Astrophysics, Niels Böhr Institute, University of Copenhagen, Denmark.
- 2013 - 2017      BSc in Physics, Physics Department, University of Pavia, Italy.

## Skills

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- Python      Upper intermediate: cluster usage and astronomical packages (AstroPy, PyRAF, Pyfits, Astroquery, SIMBAD, Vizier)
- Languages      Italian (native), English (fluent), and French (B1 level)

## Community service

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- Nov 2023 - present Organiser of the Leiden/ESA Astrophysics Program for Summer Students (LEAPS), Leiden, The Netherlands.
- Sep 2023 - present Coordinator of the outreach event "*Astronomy on Tap*", Leiden, The Netherlands.
- Sep 2023 - present Organiser of the Equity, Diversity and Inclusion journal club at Leiden Observatory.
- Sep 2023 - present Member of the Equity, Diversity and Inclusion committee at Leiden Observatory.
- Apr 2023 - present Referee for the Astrophysical Journal
- Feb 2022 - Feb 2023 Local Organising Committee member of the Planet ESLAB 2023 Symposium held at ESA-ESTEC, Noordwijk, The Netherlands.
- Apr 2022 Co-chair of the Holland-Area Exoplanet Science Meeting (HAESM), held at ESTEC-ESA, Noordwijk, Netherlands.
- Dec 2020 - May 2021 Organiser of the "*Ph.D. Day 2021*": a one-day event dedicated to Ph.D. students to showcase their research and foster collaborations. Held online, Toulouse, France.
- Sep 2020 - Dec 2020 Editor of the "*Newcomer's guide at IRAP*": a problem-solving document to describe all aspects of the Ph.D. student's life at IRAP, Toulouse, France.

## Observing experience and awarded time

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Principal Investigator of 10+ proposals for SPIRou@Canada-Hawaii-France Telescope, ESPaDOnS@Canada-Hawaii-France Telescope, NEO-NARVAL@Telescope Bernard-Lyot, and HARPS-Pol@ESO 3.6-m, accounting 300+ hours.

- Nov 2021 Visitor mode operation for eight nights at Telescope Bernard-Lyot.
- Aug 2018 MSc course "*Observational Astronomy*": observing, data reduction with IRAF and analysis for seven nights at Nordic Optical Telescope, La Palma, Spain.

## Selected conference participation

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- Oct 2023 **Talk** at the Ariel Consortium Meeting, 2023, Budapest, Hungary, with the title: *"Characterising magnetic fields for exoplanet-hosting stars in preparation of the Ariel mission"*.
- Apr 2023 **Talk** at the BCool Meeting, 2023, Goettingen, Germany, with the title: *"Monitoring the large-scale magnetic field with SPIRou, ESPaDOnS and Narval. The case of AD Leo, CN Leo, DS Leo and EV Lac"*.
- Feb 2023 **Invited Talk** at Exoplanets, Star and Planet Formation Seminar Series (ESPF), STScl (virtual) with the title: *"Is AD Leo featuring a polarity reversal of the large-scale magnetic field? Long-term monitoring across near-infrared and optical domains with SPIRou, ESPaDOnS and NARVAL"*.
- Aug 2022 **Talk** at the IAU General Assembly 2022, Busan, South Korea, with the title: *"Near-infrared long-term monitoring of AD Leo with SPIRou: towards a magnetic polarity reversal?"*.
- Jun 2022 **Talk** at the Lorentz workshop 'Life Around a Radio Star', Leiden, Netherlands, with the title: *"Magnetic fields of M dwarfs and stellar activity filtering techniques"*.
- Jun 2022 **Talk** and proceedings contribution to the ESO Hypatia Colloquia 2022 edition, online, with the title: *"Mitigating stellar activity using line selections for Least-Squares Deconvolution"*.
- Jun 2022 **Talk** and proceedings contribution to the ESO Hypatia Colloquia 2022 edition, online, with the title: *"Mitigating stellar activity using line selections for Least-Squares Deconvolution"*.
- Mar 2022 **Invited Talk** at Leiden Observatory, Leiden, Sterrewacht with the title: *"Mitigating stellar activity for exoplanet detection using line selections and Least-Squares Deconvolution"*.
- Jul 2022 **Poster** presentation at the CoolStars21 conference, Toulouse, France, with the title: *"Is AD Leo entering a polarity reversal? Long-term monitoring of the large-scale magnetic field with ESPaDOnS, NARVAL and SPIRou"*.
- May 2022 **Poster** presentation at the EXOPLANET IV conference, Las Vegas, US, with the title: *"Mitigating stellar activity jitter with a parametric and a randomised line selection for least-squares deconvolution"*.
- Oct 2021 **Poster** presentation at the Star-Planet Connection online conference with the title: *"Simulating starspot activity jitter for spectral types F-M: realistic estimates for a representative sample of known exoplanet hosts"*.
- Mar 2021 **Poster** presentation at the CoolStars20.5 online conference with the title: *"Spectropolarimetry in optical and near-IR for EV Lac and AD Leo: what is stellar activity's favourite colour?"*
- May 2019 **Poster** presentation at the Annual Danish Astronomy Meeting, Nyborg, Denmark with the title: *"Hunting exoplanets: detection limits due to starspots"*.

## Publications

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**ADS Library:** <https://ui.adsabs.harvard.edu/public-libraries/05FAF-irTF-0aqZxu4Yblw>

### Refereed

**Bellotti S.**, Morin J., Lehmann L., +18 others, "Long-term monitoring of large-scale magnetic fields across optical and near-infrared domains with ESPaDOnS, Narval and SPIRou. The cases of EV Lac, DS Leo, and CN Leo", A&A submitted

**Bellotti S.**, Vidotto A., Fares R., +8 others, "The space weather around the exoplanet GJ 436b. I. The large-scale stellar magnetic field", 2023a, Astronomy & Astrophysics, 676, A139.

**Bellotti S.**, Morin J., Lehmann L., +23 others, "Monitoring the magnetic field of AD~Leo with SPIRou, ESPaDOnS and NARVAL: Towards a magnetic polarity reversal?", 2023b, Astronomy & Astrophysics, 676, A56.

**Bellotti S.**, Petit P., Morin J., +5 others, "Mitigating stellar activity jitter with different masks for least-squares deconvolution: Analysis of a parametric and a randomised line selection", 2022, Astronomy & Astrophysics, 657, A107.

**Bellotti S.** and Korhonen H. "Simulating starspot activity jitter: realistic estimates for a representative sample of known F--M exoplanet hosts", 2021, Astronomische Nachrichten, 342:926-940.

**Bellotti S.**, Zabludoff A., Belikov R., +2 others, "Detecting Exoplanets Using Eclipsing Binaries as Natural Starshades", 2020, The Astronomical Journal, 160, 131.

Lehmann L., +3 others, **Bellotti S.**, +5 others, "SPIRou reveals unusually strong magnetic fields of slowly rotating M dwarfs", 2023, MNRAS, 527, 4330-4352

Tsvetkova S., +4 others, **Bellotti S.**, +6 others, "The large-scale magnetic field of the M dwarf double-line spectroscopic binary FK Aqr", 2023, Astronomy & Astrophysics, in press.

Crozet P., +2 others, **Bellotti S.**, +8 others, "Correlations between laboratory line lists for FeH, CrH, and NiH and M-star spectra collected with ESPaDOnS and SPIRou", 2023, Astronomy & Astrophysics, 2023, 679, A116.

Vidotto A. A., +2 others, **Bellotti S.**, +4 others, "The space weather around the exoplanet GJ 436b. II. Stellar wind-exoplanet interactions", 2023, Astronomy & Astrophysics, 678, A152.

Moutou C., +10 others, **Bellotti S.**, +9 others, "*Characterizing planetary systems with SPIRou: M-dwarf planet-search survey and the multiplanet systems GJ 876 and GJ 1148*", 2023, *Astronomy and Astrophysics*, 678, A207.

Fouque P., +4 others, **Bellotti S.**, +18 others, "*The SPIRou Legacy Survey. Rotation period of quiet M dwarfs from circular polarization in near-infrared spectral lines: I. The SPIRou APERO analysis*", 2023, *Astronomy & Astrophysics*, 672, A52.

Carmona A., Delfosse X., **Bellotti S.**, +36 others, "*Near-IR and optical radial velocities of the active M-dwarf star Gl-388 (AD~Leo) with SPIRou at CFHT and SOPHIE at OHP: A 2.23 days rotation period and no evidence for a co-rotating planet*", 2023, *Astronomy & Astrophysics*, 674, A110.

Cortes-Zuleta P., +10 others, **Bellotti S.**, +32 others, "*Optical and near-infrared stellar activity characterization of the early M dwarf Gl 205 with SOPHIE and SPIRou*", 2023, *Astronomy & Astrophysics*, 673, A14.

Martioli E., +5 others, **Bellotti S.**, +53 others, "*TOI-1759 b: a transiting sub-Neptune around a low mass star characterized with SPIRou*", *Astronomy & Astrophysics*, 660, A86.