## UNIVERSITÀ DEGLI STUDI DI MILANO

**TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO**

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B post-doc fellowship: job ID 5564

**Miguel Vioque de Lózar**

**CURRICULUM VITAE**

PERSONAL INFORMATION

| Surname | Vioque de Lózar |
|---|---|
| Name | Miguel |
| Date of birth | 03, 06, 1993 |

| Contact details of referees | |
|---|---|
| Dr. John Carpenter | Joint ALMA Observatory, Chile. Relation – Fellowship advisor. Email: john.carpenter@alma.cl |
| Prof. René D. Oudmaijer | University of Leeds, United Kingdom. Relation – PhD supervisor. Email: r.d.oudmaijer@leeds.ac.uk |
| Dr. Ignacio Mendigutía | Center for Astrobiology, Spain. Relation – Collaborator. Email: imendigutia@cab.inta-csic.es |

PRESENT OCCUPATION

| Appointment | Structure |
|---|---|
| Research Fellow | Joint ALMA Observatory. In this position I dedicate 50% of my time to leading my own science, and I have the other 50% of my time allocated to different technical duties at the observatory. |

EDUCATION AND TRAINING

| Degree | Course of studies | University | year of achievement of the degree |
|---|---|---|---|
| Degree | Physics | Universidad Complutense de Madrid | 2015 |
| Specialization | Astrophysics | Universidad Complutense de Madrid | 2015 |
| PhD | Star and planet formation | University of Leeds | 2020 |
| Master | Astrophysics and Cosmology | Universidad Autónoma de Madrid | 2016 |

| Degree of medical specialization | n/a | | |
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| Degree of European specialization | n/a | | |
| Other | Industrial Training Secondment | European Space Agency | 2018 |

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

| Date of registration | Association | City |
|---|---|---|
| 2021 | Member of IDEEA association, "Inclusion, Diversity, and Equity in European Astronomy | n/a |
| 2022 | Association of Spanish Scientists in Chile | Santiago |
| 2017 | Member of the Spanish Astronomical Society | n/a |

FOREIGN LANGUAGES

| Languages | level of knowledge |
|---|---|
| Spanish | Native speaker |
| English | Fluent speaker |

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

| Year | Description of award |
|---|---|
| 2023 | **ALMA Ambassador**, 10000 USD to cover expenses of personal science projects |
| 2022-2025 | **Visiting Research Fellow**, University of Leeds, United Kingdom |
| 2022 | Science journal highlight for Vioque et al. 2022, ApJ, 930, 39 |
| 2020 | **ALMA Fellowship** |
| 2020 | Recognition of PhD research excellence from the Dean of the Leeds Doctoral College |
| 2019 | Second-best talk award at School of Physics & Astronomy Symposium, University of Leeds |
| 2018 | Astronomy & Astrophysics highlight for Vioque et al. 2018, A&A, 620, A128 |
| 2016-2019 | **Marie Sklodowska Curie ITN Fellowship** |
| 2015-2016 | Master scholarship "Fomento a la Investigacion en Estudios de Master-UAM" |
| 2020 | Press release for Vioque et al. 2020, A&A, 638, A21, Unlocking clues to the origins of the stars, University of Leeds, United Kingdom |
| 2018 | Press release for Vioque et al. 2018, A&A, 620, A128, Nuevos datos de Gaia nos acercan a desvelar como se forman las estrellas masivas, Centro de Astrobiología, Spain |

TRAINING OR RESEARCH ACTIVITY

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| 2023. **Main organizer of ALMA proposal preparation workshop**, Universidad Diego Portales, Chile |
| 2022. **Main organizer (SOC chair and LOC member) of ESO Workshop**, Accretion/Ejection Processes in Star Formation: In Theory and in Practice, ESO, Chile |

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| 2022. **Local Organizing Committee member of international conference**, Joint Observatories Kavli Science Forum, ESO, Chile |
| 2021. **Local Organizing Committee member of ESO workshop**, ALMA Cycle 8 Preparation Workshop 2021, Joint ALMA Observatory, Chile |
| 2021-now. Organizer of weekly colloquiums and astro-ph discussion meetings, Joint ALMA Observatory and ESO, Chile |
| 2019-2020. Organizer of the weekly science seminars, University of Leeds, United Kingdom |
| 2019 **Local Organizing Committee member of international conference**, Gaia's view of Pre-Main Sequence Evolution, Leeds, United Kingdom |
| Referee for Astronomy & Astrophysics, The Astrophysical Journal, The Astronomical Journal, and Astrophysics and Space Science |
| **Supervisor of Master of Science thesis**, 2021. Project: Clustering Properties of High-Mass Pre-Main Sequence Stars with Machine Learning and Gaia eDR3, Pontificia Universidad Catolica de Chile, Chile. Student: Manuel Cavieres Carrera. Maximum grade obtained. |
| **Supervisor of NRAO REU-Chile program**, 2021. Project: Clustering Properties of Herbig Stars with Machine Learning and Gaia, Joint ALMA Observatory, Chile |
| First Year Computing demonstrator, 2020, University of Leeds, United Kingdom |
| **Co-supervisor of Summer Research Project**, 2019. Project: A Comprehensive Study of the Enigmatic Classical Be Stars, University of Leeds, United Kingdom |
| Advisor on Final Bachelor Art Degree Project, 2019. Project: La Representacion del Cosmos a traves del Arte Digital, Universidad Rey Juan Carlos, Spain. Student: Ana Campos Manso. Maximum grade obtained. |
| First Year Fundamental Physics demonstrator, 2019. University of Leeds, United Kingdom |
| First Year Laboratory demonstrator, 2017. University of Leeds, United Kingdom |
| Star Formation Module demonstrator, 2016. University of Leeds, United Kingdom |

PROJECT ACTIVITY

| Year | Project |
|---|---|
| 2022-now | **Member of the ODYSSEUS collaboration**. Collaboration organized around the Hubble Space Telescope ULLYSES DDT program and the associated observations of PENELLOPE VLT large program and other datasets. |
| 2021-now | **Member of the AGE-PRO collaboration**. AGE-PRO is an ALMA large program to study the evolution of gas in protoplanetary disks. |
| 2019-now | **Member of the WEAVE/WHT consortium**. WEAVE is a new multi-object survey spectrograph and integral-field unit at the 4.2-metre William Herschel Telescope. I am a member of the Young Stellar Objects team. |

CONGRESSES AND SEMINARS

(**I only list those conferences in which I had an oral contribution**. For a complete list of attended conferences please refer to my complete CV at: https://mvioque.github.io/#)

| Date | Title | Place |
|---|---|---|
| 2022 | Accretion/Ejection Processes in Star Formation: In Theory and in Practice | ESO, Santiago, Chile |
| 2022 | **Invited seminar** | University of Geneva, Switzerland |
| 2022 | **Invited seminar** | Spanish Group of Massive Stars, online |
| 2022 | XV Reunion Cientifica de la Sociedad Española de Astronomia | La Laguna, Spain |
| 2022 | European Astronomical Society Annual | Valencia, Spain |

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|---|---|---|
| | Meeting | |
| 2022 | From Stars to Galaxies II: Connecting our understanding of star and galaxy formation | Chalmers University, Gothenburg, Sweden |
| 2022 | Science seminar | Instituto de Astrofisica de Andalucia, Granada, Spain |
| 2022 | Joint Observatories Kavli Science Forum | ESO, Santiago, Chile |
| 2021 | Machine Learning in Astronomy, from classical to physics-informed | Virtual workshop |
| 2021 | **Invited seminar** | Nucleo Milenio for Planet Formation, Valparaiso, Chile |
| 2021 | **Invited talk**, Workshop en ciencia de datos | Universidad de Valparaiso, Valparaiso, Chile |
| 2020 | Science seminar | University of Leeds, Leeds, United Kingdom |
| 2020 | Science seminar | Universidad de Chile, Santiago, Chile |
| 2020 | Science seminar | ESO, Santiago, Chile |
| 2019 | **Invited seminar** | Sternberg Astronomical Institute, Moscow, Russia |
| 2019 | The UX Ori type stars and related topics | St. Petersburg, Russia |
| 2019 | Science seminar | ESAC, Madrid, Spain |
| 2019 | Artificial Intelligence in Astronomy | ESO, Garching, Germany |
| 2019 | Gaia's view of Pre-Main Sequence Evolution | Leeds, United Kingdom |
| 2018 | Science seminar | Centro de Astrobiologia, Madrid, Spain |
| 2018 | A Revolution in Stellar Physics with Gaia and Large Surveys | Warsaw, Poland |
| 2018 | Spring Symposium: The 21st Century H-R Diagram: The Power of Precision Photometry | STScI, Baltimore, USA |
| 2018 | Science seminar | Centro de Astrobiologia, Madrid, Spain |
| 2017 | Star Cluster Formation: Mapping the first few Myrs | Madrid, Spain |
| 2017 | Science seminar | University of Leeds, Leeds, United Kingdom |

PUBLICATIONS

| Articles in journals – with Vioque M. |
|---|
| Lyα Scattering Models Trace Accretion and Outflow Kinematics in T Tauri Systems, accepted for publication in ApJ |
| Relation between metallicities and spectral energy distributions of Herbig Ae/Be stars. A potential link with planet formation, accepted for publication in A&A |
| The wide-field, multiplexed, spectroscopic facility WEAVE: Survey design, overview, and simulated implementation, accepted for publication in MNRAS |
| X-Shooter Survey of Young Intermediate Mass Stars - I. Stellar Characterization and Disc Evolution, accepted for publication in MNRAS |
| A census of post-AGB stars in Gaia DR3: Evidence for a substantial population of Galactic post-RGB stars, 2022, MNRAS Letters, 516, L61-L65 |

| Gaia EDR3 comparative study of protoplanetary disk fractions in young stellar clusters, 2022, A&A, 664, A66 |
|---|
| Identification and spectroscopic characterization of 128 new Herbig stars, 2022, ApJ, 930, 39 |
| The first interferometric survey in the K-band of massive YSOs. Hot dust, ionised gas, and binarity at au scales, 2021, A&A, 654, A109 |
| K-band GRAVITY/VLTI interferometry of "extreme" Herbig Be stars. The size-luminosity relation revisited, 2021, A&A, 652, A68 |
| First detection of a disk free of volatile elements around a young A-type star: A possible sign of collisions between rocky planets, 2021, A&A, 651, L11 |
| Homogeneous study of Herbig Ae/Be stars from spectral energy distributions and Gaia EDR3, 2021, A&A, 650, A182 |
| Planet formation in intermediate-separation binary systems, 2021, MNRAS, 501, 4317 |
| Catalogue of new Herbig Ae/Be and classical Be stars: A machine learning approach to Gaia DR2, 2020, A&A, 638, A21 |
| The accretion rates and mechanisms of Herbig Ae/Be stars, 2020, MNRAS, 493, 234 |
| Gaia DR2 study of Herbig Ae/Be stars, 2018, A&A, 620, A128 |
| Submitted articles |
| The Mdot-Mdisk relationship for Herbig Ae/Be stars: different evolutionary pathways depending on dust structure?, submitted to A&A |
| Clustering properties and Galactic distribution of intermediate and high-mass YSOs. Isolated intermediate-mass YSOs are common, submitted to ApJ |

| Congress proceedings – with Vioque M. |
|---|
| Gaia EDR3 comparison of disk fractions from different spatial scales around young stellar clusters, 2021, Star Clusters: the Gaia Revolution. Online workshop, organised by the Institute of Cosmos Sciences (ICCUB-IEEC), id.6 |
| Cataloguing new high-mass Pre-Main Sequence and Classical Be stars using Machine Learning and Gaia, 2020, Contributions to the XIV.0 Scientific Meeting (virtual) of the Spanish Astronomical Society, id. 192 |
| New catalogue of intermediate mass Pre-Main Sequence objects in Gaia DR2 using Machine Learning, 2019, 53rd ESLAB Symposium: The Gaia Universe, id. 52 |
| Gaia study on the formation of intermediate mass stars, 2019, Highlights on Spanish Astrophysics X, Proceedings of the XIII Scientific Meeting of the Spanish Astronomical Society, p. 437-437 |
| Herbig Ae/Be stars with TGAS parallaxes in the HR diagram, 2018, Astrometry and Astrophysics in the Gaia sky, Proceedings of the International Astronomical Union, Volume 330, pp. 277-278 |
| HR diagram of Herbig Ae/Be stars and their infrared excesses, 2017, Memorie della Societa Astronomica Italiana, v.88, p.824 |

OTHER INFORMATION

| Complete CV |
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| My complete CV, with links to relevant webpages, can be downloaded at my personal webpage: https://mvioque.github.io/# |

(**I only list those observing proposals which I led and of which I am the principal investigator.** For a more complete list of observing proposals in which I have participated, please refer to my complete CV at: https://mvioque.github.io/#)

| Accepted PI observing proposals |
|---|
| 2022. **ALMA**, Vioque et al., Characterizing the protoplanetary disks around young massive stars. Band 6 mm-interferometry |

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| 2022. **X-SHOOTER/VLT**, Vioque et al., Characterizing homogeneous sample of new intermediate-mass pre-main sequence objects – 2. Optical and near-infrared spectroscopy |
| 2021. **X-SHOOTER/VLT**, Vioque et al., Characterizing homogeneous sample of new intermediate-mass pre-main sequence objects – 1. Optical and near-infrared spectroscopy. Optical and near-infrared spectroscopy |
| 2020. **EFOSC2/NTT**, Vioque et al., New Herbig Ae/Be candidates using Gaia and Machine Learning. Long-slit optical spectroscopy |
| 2019. **CAFOS/CAHA2.2m**, Vioque et al., New Herbig Ae/Be candidates using Gaia and Machine Learning. Long-slit optical spectroscopy |
| 2019. **IDS/INT**, Vioque et al., New Herbig Ae/Be candidates using Gaia and Machine Learning. Long-slit optical spectroscopy |

| Outreach |
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| 2021-now: "Skype a Scientist" speaker |
| 2022 Social media commentator of the EHT results |
| 2022 ESO/ALMA all-day activities for astronomy day in Chile "Astronomía al Parque" |
| 2022 Two times AskALMA outreach program interviewee |
| 2020 Online interactive tutorial |
| 2019 Outreach lecture at School of Physics & Astronomy Symposium, New Baby Stars, University of Leeds, United Kingdom |
| 2016–2019 Personal dissemination blog |
| 2016–2019 Project Twitter manager |
| 2019 Pint of Science demonstrator, Leeds, United Kingdom |
| 2019 Digital Festival demonstrator, Leeds, United Kingdom |
| 2017 Outreach lecture to bachelor students, Cómo se forman las estrellas?, Colegio Mayor Isabel de España, Spain |
| 2017 Pint of Science demonstrator, Leeds, United Kingdom |
| 2017 Stargazing Live demonstrator, science to primary schools, York, United Kingdom |

| Observational and telescope experience |
|---|
| 2021-now: ALMA observing astronomer (around 70 eight-hour shifts a year) |
| 2021-now: Member of ALMA Band 1 commissioning team |
| 2021-now: Preparing VLBI observations and observing with VLBI (EHT and GMVA telescopes) |
| 2020-2021 Member of ALMA calibration and data reduction team |
| 2020 Observing astronomer at NTT optical telescope (7 nights) |
| 2016 & 2019 Observing astronomer at CAHA2.2m optical telescope (5 nights) |
| 2019 Observing astronomer at INT optical telescope (12 nights) |
| 2017 Observing astronomer at WHT optical telescope (3 nights) |

| Digital Skills |
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| Python (including Astropy, TensorFlow, Keras, and Scikit-Learn), Julia, ADQL, LaTeX, Virtual Observatory tools (TOPCAT, Aladin, VOSpec, VOSA, SPLAT) and astronomical data reduction software (Casa, EsoReflex, IRAF, DS9), MATLAB, Unix, Mac OS, Microsoft Windows, Microsoft Office, GNU/Linux |

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: 12th of January 2023, Santiago, Chile

SIGNATURE

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