

## PROFESSIONAL AND ACADEMIC BACKGROUND

- 2020 – present Severo Ochoa postdoctoral fellow, Instituto de Astrofísica de Andalucía (IAA-CSIC), Granada, Spain
- 2018 – 2019 Postdoctoral fellow in the Galactic Centre group for *GALACTICNUCLEUS* ERC Consolidator project, IAA-CSIC, Granada, Spain.
- 2016 – 2017 Postdoctoral Researcher, University of Cologne, Cologne, Germany.
- 2011 – 2015 Doctor of Philosophy (PhD), Astrophysics, Max-Planck-Institute for Radio Astronomy and University of Cologne, Cologne, Germany (Magna Cum Laude).
- Dissertation Topic : *Near-Infrared Polarimetry in the Galactic Center On Properties of Sagittarius A\* and a Dusty S-cluster Object*
- Supervisor: Prof. Dr. Andreas Eckart, Co-supervisor: Prof. Dr. Anton Zensus
- 2006 – 2009 M.Sc. in Physics (Astrophysics), University of Zanjan, Iran (<http://www.znu.ac.ir>).
- 2001 – 2005 B.Sc. in Physics, University of Isfahan, Iran (<http://www.iu.ac.ir>).

## REFEREED PUBLICATIONS

- [1] A. T. Gallego-Calvente, R. Schoedel, A. Alberdi, et al., Radio observations of massive stars in the Galactic centre: The Arches Cluster, (2021), *arXiv e-prints*, arXiv:2101.05048. (0 Citations).
- [2] E. Gallego-Cano, R. Schödel, F. Nogueras-Lara, et al., New constraints on the structure of the nuclear stellar cluster of the Milky Way from star counts and MIR imaging, (2020), *A&A*, 634, A71. (8 Citations).
- [3] F. Nogueras-Lara, R. Schödel, N. Neumayer, et al., GALACTICNUCLEUS: A high angular-resolution JHK<sub>s</sub> imaging survey of the Galactic centre. III. Evidence for wavelength-dependence of the extinction curve in the near-infrared, (2020), *A&A*, 641, A141. (3 Citations).
- [4] Francisco Nogueras-Lara, Rainer Schödel, Aurelia Teresa Gallego-Calvente, et al., Early formation and recent starburst activity in the nuclear disk of the Milky Way, (2020), *Nature Astronomy*, 4, 377–381. (25 Citations).
- [5] R. Schödel, F. Nogueras-Lara, E. Gallego-Cano, et al., The Milky Way’s nuclear star cluster: Old, metal-rich, and cuspy. Structure and star formation history from deep imaging, (2020), *A&A*, 641, A102. (5 Citations).
- [6] F. Nogueras-Lara, R. Schödel, A. T. Gallego-Calvente, et al., GALACTICNUCLEUS: A high-angular-resolution JHK<sub>s</sub> imaging survey of the Galactic centre. II. First data release of the catalogue and the most detailed CMDs of the GC, (2019), *A&A*, 631, A20. (12 Citations).
- [7] F. Nogueras-Lara, R. Schödel, F. Najarro, et al., Variability of the near-infrared extinction curve towards the Galactic centre, (2019), *A&A*, 630, L3. (10 Citations).
- [8] F. Peißker, M. Zajaček, A. Eckart, et al., New bow-shock source with bipolar morphology in the vicinity of Sgr A\*, (2019), *A&A*, 624, A97. (8 Citations).
- [9] **B. Shahzamanian**, R. Schödel, F. Nogueras-Lara, et al., First results from a large-scale proper motion study of the Galactic centre, (2019), *A&A*, 632, A116. (1 Citations).
- [10] **B. Shahzamanian**, A. Eckart, M. Zajacek, M. Valencia-S., and N. Sabha, Polarization: A Method to Reveal the True Nature of the Dusty S-Cluster Object (DSO/G2), (2018), *Galaxies*, 6, 13. (1 Citations).
- [11] L. Moser, Á. Sánchez-Monge, A. Eckart, et al., Approaching hell’s kitchen: Molecular daredevil clouds in the vicinity of Sagittarius A\*, (2017), *A&A*, 603, A68. (25 Citations).
- [12] M. Parsa, A. Eckart, **B. Shahzamanian**, et al., Investigating the Relativistic Motion of the Stars Near the Supermassive Black Hole in the Galactic Center, (2017), *ApJ*, 845, 22. (52 Citations).
- [13] M. Subroweit, M. García-Marín, A. Eckart, et al., Submillimeter and radio variability of Sagittarius A\*. A statistical analysis, (2017), *A&A*, 601, A80. (11 Citations).
- [14] M. Zajaček, S. Britzen, A. Eckart, et al., Nature of the Galactic centre NIR-excess sources. I. What can we learn from the continuum observations of the DSO/G2 source?, (2017), *A&A*, 602, A121. (11 Citations).
- [15] M. Zajacek, A. Eckart, and **B. Shahzamanian**, Polarimetry Narrows Down the Possibilities for the Dusty S-Cluster Object (DSO/G2) in the Galactic Centre, (2017), *The Observatory*, 137, 112.
- [16] A. Borkar, A. Eckart, C. Straubmeier, et al., Monitoring the Galactic Centre with the Australia Telescope Compact Array, (2016), *MNRAS*, 458, 2336. (11 Citations).

- [17] C. Rauch, E. Ros, T. P. Krichbaum, et al., Wisps in the Galactic center: Near-infrared triggered observations of the radio source Sgr A\* at 43 GHz, (2016), *A&A*, 587, A37. (20 Citations).
- [18] **B. Shahzamanian**, A. Eckart, M. Zajaček, et al., Polarized near-infrared light of the Dusty S-cluster Object (DSO/G2) at the Galactic center, (2016), *A&A*, 593, A131. (18 Citations).
- [19] M. Zajaček, A. Eckart, V. Karas, et al., Effect of an isotropic outflow from the Galactic Centre on the bow-shock evolution along the orbit, (2016), *MNRAS*, 455, 1257. (18 Citations).
- [20] S. Britzen, A. Eckart, C. Lämmerzahl, et al., Jet signatures of black holes: From Sgr A\* to active galactic nuclei, (2015), *Astronomische Nachrichten*, 336, 471. (2 Citations).
- [21] **B. Shahzamanian**, A. Eckart, M. Valencia-S., et al., Polarized light from Sagittarius A\* in the near-infrared K<sub>s</sub>-band, (2015), *A&A*, 576, A20. (36 Citations).
- [22] **B. Shahzamanian**, A. Eckart, M. Valencia-S., et al., Variable and Polarised Near-infrared Emission from the Galactic Centre, (2015), *The Messenger*, 159, 41. (3 Citations).
- [23] M. Valencia-S., A. Eckart, M. Zajaček, et al., Monitoring the Dusty S-cluster Object (DSO/G2) on its Orbit toward the Galactic Center Black Hole, (2015), *ApJ*, 800, 125. (50 Citations).
- [24] A. Eckart, K. Mužić, S. Yazici, et al., Near-infrared proper motions and spectroscopy of infrared excess sources at the Galactic center, (2013), *A&A*, 551, A18. (73 Citations).
- [25] A. Eckart, N. Sabha, G. Witzel, et al., Beating the confusion limit: the necessity of high angular resolution for probing the physics of Sagittarius A\* and its environment: opportunities for LINC-NIRVANA (LBT), GRAVITY (VLTI) and METIS (E-ELT), (2012), *Proc. SPIE*, 8445, 84451F. (5 Citations).
- [26] N. Sabha, A. Eckart, D. Merritt, et al., The S-star cluster at the center of the Milky Way. On the nature of diffuse NIR emission in the inner tenth of a parsec, (2012), *A&A*, 545, A70. (30 Citations).
- [27] G. Witzel, A. Eckart, M. Bremer, et al., Source-intrinsic Near-infrared Properties of Sgr A\*: Total Intensity Measurements, (2012), *ApJS*, 203, 18. (88 Citations).

## PROCEEDINGS

- [1] E. Gallego-Cano, R. Schödel, **B. Shahzamanian**, et al. The stellar cusp around the Milky Way's central black hole, Highlights on Spanish Astrophysics X, Proceedings of the XIII Scientific Meeting of the Spanish Astronomical Society, Salamanca, Spain, 2019.
- [2] A. Eckart, M. Parsa, E. Mossoux, et al. Light and shadow in the Galactic Center - On the detection of the relativistic periastron shift of star S2 in the Galactic Center, published in the proceedings of the XII workshop on 'Multifrequency Behavior of High Energy Cosmic Sources', in Palermo, Italy, 2018.
- [3] A. Eckart, M. Zajacek, M. Parsa, et al. The Multifrequency Behavior of Sagittarius A\*, published in the proceedings of the XII workshop on 'Multifrequency Behavior of High Energy Cosmic Sources', in Palermo, Italy, 2018.
- [4] L. Moser, Á. Sánchez-Monge, A. Eckart, et al. Molecular gas in the immediate vicinity of Sgr A\* seen with ALMA, The Multi-Messenger Astrophysics of the Galactic Centre, Proceedings of the International Astronomical Union, IAU Symposium, Volume 322, 2017.
- [5] C. Rauch, E. Ros, T. P. Krichbaum, et al. NIR triggered observations of Sgr A\* at 43 GHz, The Multi-Messenger Astrophysics of the Galactic Centre, Proceedings of the International Astronomical Union, IAU Symposium, Volume 322, 2017.
- [6] **B. Shahzamanian**, M. Zajaček, M. Valencia-S., et al. Detection of polarized continuum emission of the Dusty S-cluster Object (DSO/G2), The Multi-Messenger Astrophysics of the Galactic Centre, Proceedings of the International Astronomical Union, IAU Symposium, Volume 322, 2017.
- [7] M. Zajaček, V. Karas, E. Hosseini, et al. Polarization properties of bow shock sources close to the Galactic centre, Proceedings of : Workshops on black holes and neutron stars, 2015/2016/2017, Opava, Czech Republic, 2017.
- [8] M. Zajaček, M. Valencia-S., **B. Shahzamanian**, et al. Nature of the Dusty S-cluster Object (DSO/G2): Pre-main-sequence star with non-spherical dusty envelope, The Multi-Messenger Astrophysics of the Galactic Centre, Proceedings of the International Astronomical Union, IAU Symposium, Volume 322, 2017.
- [9] A. Eckart, M. Valencia-S., **B. Shahzamanian**, et al. Experimental Indicators of Accretion Processes in Active Galactic Nuclei, Proceedings of Accretion Processes in Cosmic Sources, Saint Petersburg, Oct. 2016.
- [10] A. Eckart, M. Valencia-S., **B. Shahzamanian**, et al. Nuclear Activity and the Conditions of Star-formation at the Galactic Center, Frontier Research in Astrophysics II, in Mondello (Palermo), Italy (FRAPWS2016), 2016.
- [11] M. Zajacek, A. Eckart, **B. Shahzamanian**, et al. Star-formation in galactic nuclei: properties of YSOs near the Galactic centre, The 6th Zermatt ISM Symposium, Zermatt, Switzerland, 2015.
- [12] A. Eckart, M. Horrobin, S. Britzen, et al. The infrared K-band identification of the DSO/G2 source from VLT and Keck data, The Galactic Center: Feeding and Feedback in a Normal Galactic Nucleus, Proceedings of the International Astronomical Union, Volume 303, 2014.

- [13] A. Eckart, M. Valencia-S., F. Peissker, et al. Monitoring the Dusty S-cluster Object (DSO/G2) on its orbit towards the Galactic Center Black Hole: Periapse not yet reached, *The Astronomer's Telegram*, 2014.
- [14] A. Eckart, M. Valencia-S., **B. Shahzamanian**, et al. The Center of the Milky Way from Radio to X-rays, *Proceedings of Frontier Research in Astrophysics (FRAPWS2014) in Mondello (Palermo), Italy*, 2014.
- [15] L. Moser, A. Eckart, A. Borkar, et al. Sgr A West in the light of molecules: cold and dense gas east of the circumnuclear disk, *The Galactic Center: Feeding and Feedback in a Normal Galactic Nucleus*, *Proceedings of the International Astronomical Union*, Volume 303, 2014.
- [16] **B. Shahzamanian**, A. Eckart, M. Zamaninasab, G. Witzel, and N. Sabha. Observations of NIR polarized light from Sagittarius A\*, *The Galactic Center: Feeding and Feedback in a Normal Galactic Nucleus*, *Proceedings of the International Astronomical Union*, Volume 303, 2014.
- [17] A. Eckart, K. Mužić, S. Yazici, et al. The broad band spectral properties of SgrA\* . The fate of the dusty object approaching the center, *Memorie della Societa Astronomica Italiana*, v.84, 2013.
- [18] A. Eckart, S. Britzen, M. Horrobin, et al. The Galactic Center as a paradigm for low-luminosity nuclei? What can be learned from SgrA\* for the central engine and conditions of star formation in nuclei of Seyfert galaxies and low luminosity nearby QSOs; The K-band identification of the DSO/G2 source from VLT and Keck data, *Proceedings of Nuclei of Seyfert galaxies and QSOs (Seyfert 2012)*, Max-Planck-Institut für Radioastronomie (MPIfR), Bonn, Germany, 2012.
- [19] **B. Shahzamanian**, A. Eckart, G. Witzel, N. Sabha, and M. Zamaninasab. Polarized NIR observations of Sagittarius A\*, *Proceedings of Nuclei of Seyfert galaxies and QSOs (Seyfert 2012)*, Max-Planck-Institut für Radioastronomie (MPIfR), Bonn, Germany, 2012.
- [20] **B. Shahzamanian**, S. Nasiri, and S. Arbabi. Spectral Evolution of Field Galaxies, *Journal of Physics: Conference Series*, Volume 372, 2012.

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## GRANTS AND FELLOWSHIPS

- 2020 – present Severo Ochoa Post-doctoral Fellowship, IAA, CSIC
- 2018 – 2020 Post-doctoral fellow in the ERC GALACTICNUCLEUS project (IAA-CSIC, PI: R.Schödel)
- 2017 Four years ESO Post-doctoral fellowship, ESO, Santiago, Chile [declined]
- 2016 – 2017 Post-doctoral researcher grant Bonn Cologne Graduate School for Physics and Astronomy (BCGS), after a competitive application process for the graduates of PhD program among different physics institutes
- 2013 – present Travel and visitor program grants, such as participation grant for International Astronomical Union 303 Symposium 2013 conference in New Mexico-USA and UCLA Galactic Centre group visitor grant
- 2013 – 2015 Grant from BCGS honors branch, awarded to the top candidates of the Physics graduate program
- 2011 – 2015 Four years PhD Grant from University of Cologne and Max-Planck-Institute for Radio Astronomy

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## EVALUATION PANELIST REVIEWER

- 2017 Panel member of 2 PhD defenses in University of Cologne and University of Granada
- 2015 – present Frequently refereeing papers in astrophysics journals such as MNRAS, Galaxies, Nature, and ApJ

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## TEACHING AND SUPERVISING EXPERIENCE

- 2018 – present Co-tutoring of four PhD students and a master student in IAA-CSIC, Granada, Spain.
- 2015 – 2017 Co-supervision of a PhD and a Master student in University of Cologne, Cologne, Germany.
- 2014 – 2015 Teacher assistant for Atomic physics, University of Cologne, Cologne, Germany.
- 2007 – 2008 English teacher for high school students, Isfahan, Iran.
- 2007 – 2011 Teaching cosmology and astrophysics courses in Adib Astronomy Center, Isfahan, Iran.

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## SCIENTIFIC COMMUNICATIONS

### Invited talks and seminars

- August 2017 Invited seminar of “Near-infrared observations of the Galactic Center” in IAA-CSIC, Granada, Spain.

### Contributed talks

- September 2020 “Large-scale proper motion study of the Galactic Centre” in Cologne/Prague Based Online Conference.
- September 2020 “Large-scale proper motion study of the Galactic Centre” in International Annual Meeting of the German Astronomical Society, virtual conference.
- October 2019 “First results from a large-scale proper motion study of the Galactic Centre” in New Horizons in Galactic Center Astronomy and Beyond, Yokohama, Japan.
- July 2018 “Near-Infrared Observations of Galactic Centre” in XIII Scientific Meeting of the Spanish Astronomical Society (SEA2018), Salamanca, Spain.
- June 2017 “Polarized near-infrared emission from the Galactic center” in Polarised Emission from Astrophysical Jets, Ierapetra, Greece.
- November 2015 “Variable and Polarised Near-infrared Emission from the Galactic Centre” in Cologne-Prague Meeting, Prague, Czech Republic.
- September 2015 “Ks-band Near-infrared Polarized Observations of Sagittarius A\*” in Annual meeting of the Astronomical society, Kiel, Germany.
- May 2015 “Polarized light from Sgr A\* in the near-infrared Ks-band” in Polarization and Active Galactic Nuclei International meeting, Strasbourg, France.
- May 2014 “NIR polarized light from Sgr A\*” in Astronomical Polarimetry meeting, Grenoble, France.
- September 2013 “NIR polarized observations of Sagittarius A\*” in International Astronomical Union (IAU Symposium 303), Santa Fe New Mexico, USA.
- November 2013 “NIR polarization of Sgr A\*” in Galactic Center Black Hole Laboratory Conference , Granada, Spain.
- October 2012 “Near Infrared Emission of Sgr A\*” in the IMPRS weekly seminar, Max-Planck-Institut fuer Radioastronomie, Bonn, Germany.
- July 2009 “Spectral Evolution of field Galaxies” in Astronomy Conference, Shiraz University, Shiraz, Iran.
- September 2008 “Spectral Evolution of Galaxies ” in 13th Research Meeting on Astronomy in IASBS, Zanjan, Iran.

## Poster presentation

- July 2016 “Detection of polarized continuum emission of the Dusty S-cluster Object (DSO/G2)” in The Multi-Messenger Astrophysics of the Galactic Centre (IAU S322), Queensland, Australia.
- November 2012 “Polarized NIR observations of Sagittarius A\*” in Work- shop on: Nuclei of Seyfert galaxies and QSOs - Central engine & conditions of star formation, MPIfR Bonn, Germany.
- April 2012 “The NIR Emission of Sagittarius A\*” in Black Holes: From Quantum To Gravity Conference, Malta.
- August 2011 “Spectral Evolution of Field Galaxies” in Astronomy at High Angular Resolution 2011 Conference, Physikzentrum Bad Honnef, Germany.

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## OBSERVING PROPOSALS AND OBSERVATION SKILL

### Observation proposals

- 2019-2020 Principal Investigator of two successful Galactic Center observational proposals for the ESO VLT for which obtained more than 30 hours observing time.
- 2012 – 2020 Co-I of 30 successful observational proposals for the ESO VLT.
- 2012 – 2015 Two times performing Near-Infrared polarimetric observations of the central super-massive black hole Sagittarius A\* in Ks- and L-band in polarimetry mode using AO supported instrument NACO of ESO VLT. Performing Spectroscopy and integral field spectroscopy observations of Galactic Center with SINFONI instrument of ESO VLT.

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## PERSONAL SKILLS AND EXPERIENCE

- Computer skills Operating systems: *Unix/Linux, Windows, macOS*. Programing languages: *Python, IDL, MATLAB, DPUSER, R*, Astronomical Softwares: *Starfinder, TOPCAT, GALAXEV*, Software: *Microsoft Office, LaTeX, Sigmaplot*.
- Languages English (full professional proficiency), German (advanced, B2 level certificate), Persian (native, mother tongue), Arabic (basic).

Outreach & Organising Wrote an invited article for The ESO's Messenger magazine about Polarised Near-infrared Emission from the Galactic Center. Voluntary presented a talk in an outreach event of EURAXESS-researchers in motion for undergraduate students at University of Cologne. Presented a talk in the outreach event of "European night of researchers" for public in Granada, Spain. Organiser of Seminar Journal Club and the weekly group meeting of the Galactic Centre Group, at the IAA-CSIC. Chair of a session in SEA2018, Salamanca conference and in SOMACHIN2020, IAA virtual workshop.