

Banafsheh Shahzamanian

Postdoctoral Researcher

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RESEARCH INTEREST

- Galactic Center, Galactic/Extragalactic Astronomy, Active Galactic Nuclei
- Observational Astronomy, Infrared/Optical Astronomy, Imaging polarimetry
- Photometry, Astrometry, Data analysis, Statistical analysis

PROFESSIONAL AND ACADEMIC BACKGROUND

- 2018 – present Advanced Postdoctoral fellow in the Galactic Centre group for *GALACTICNUCLEUS* ERC Consolidator project Instituto de Astrofísica de Andalucía, Granada, Spain.
- 2016 – 2018 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
- 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] **B. Shahzamanian**, A. Eckart, M. Zajaček, 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. (0 Citations).
- [2] 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. (7 Citations).
- [3] 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. (6 Citations).
- [4] M. Subroweit, M. García-Marín, A. Eckart, et al., Submillimeter and radio variability of Sagittarius A*. A statistical analysis, (2017), *A&A*, 601, A80. (0 Citations).
- [5] 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. (5 Citations).
- [6] M. Zajaček, 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.
- [7] A. Borkar, A. Eckart, C. Straubmeier, et al., Monitoring the Galactic Centre with the Australia Telescope Compact Array, (2016), *MNRAS*, 458, 2336. (5 Citations).
- [8] 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. (10 Citations).
- [9] **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. (9 Citations).
- [10] 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. (12 Citations).
- [11] 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).
- [12] **B. Shahzamanian**, A. Eckart, M. Valencia-S., et al., Polarized light from Sagittarius A* in the near-infrared K_s-band, (2015), *A&A*, 576, A20. (23 Citations).
- [13] **B. Shahzamanian**, A. Eckart, M. Valencia-S., et al., Variable and Polarised Near-infrared Emission from the Galactic Centre, (2015), *The Messenger*, 159, 41. (2 Citations).
- [14] 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. (35 Citations).

- [15] 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. (53 Citations).
- [16] 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).
- [17] 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. (19 Citations).
- [18] G. Witzel, A. Eckart, M. Bremer, et al., Source-intrinsic Near-infrared Properties of Sgr A*: Total Intensity Measurements, (2012), *ApJS*, 203, 18. (56 Citations).

PROCEEDINGS

- [1] A. Eckart, M. Valencia-S., **B. Shahzamanian**, et al. Experimental Indicators of Accretion Processes in Active Galactic Nuclei, , note = (0 Citations), 2017.
- [2] A. Eckart, M. Valencia-S., **B. Shahzamanian**, et al. Nuclear Activity and the Conditions of Star-formation at the Galactic Center, , note = (0 Citations), 2017.
- [3] 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, 2017.
- [4] 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, 2017.
- [5] **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, 2017.
- [6] 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, 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, 5 Nov. 2015/2016/2017, Opava, Czech Republic, Silesian University in Opava, 2017, ISBN 978-80-7510-257-7, ISSN 2336-5676, p. 237-252, 2017.
- [8] 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, held 23-28 May, 2016 in Mondello (Palermo), Italy (FRAPWS2016). Online at https://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=269, id.42, 2016.
- [9] 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, Proceedings of a conference that took place September 11-15, 2015 in Zermatt, Switzerland. Online available at <http://www.astro.uni-koeln.de/zermatt2015>, id. 48, 2015.
- [10] 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.
- [11] 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) held 26-31 May, 2014 in Mondello (Palermo), Italy., 2014.
- [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, 2014.
- [13] 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, 2014.
- [14] **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, 2014.
- [15] A. Eckart, K. Mužić, S. Yazici, et al. The broad band spectral properties of SgrA* . The fate of the dusty object approaching the center, Mem. Soc. Astron. Italiana, 2013.
- [16] 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, ,2012.
- [17] **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 - Central engine ; conditions of star formation (Seyfert 2012). 6-8 November, 2012. Max-Planck-Institut für Radioastronomie (MPIfR), Bonn, Germany, 2012.
- [18] **B. Shahzamanian**, S. Nasiri, and S. Arbabi. Spectral Evolution of Field Galaxies, Journal of Physics Conference Series, 2012.

GRANTS AND FELLOWSHIPS

- 2017 Four years ESO Post-doctoral fellowship, ESO, Santiago, Chile [declined]
- 2016 – 2017 One year Post-doctoral researcher grant (BCGS)
- 2011 – 2015 Four years PhD Grant from University of Cologne and Max-Planck-Institute for Radio Astronomy
- 2013 – 2015 Two years Grant from Bonn Cologne Graduate School for Physics and Astronomy (BCGS) honors branch, awarded to the top candidates of the Physics graduate program
- 2013 Grant for participation in the International Astronomical Union (IAU) 303 Symposium 2013 conference in New Mexico-USA funded by IAU

EVALUATION PANELIST REVIEWER

- 2017 Panel member of a PhD defense in University of Cologne
- 2015 – present Frequently refereeing papers in international astrophysics journals such as MNRAS, and Galaxies

TEACHING AND SUPERVISING EXPERIENCE

- 2015 – 2017 Co-supervision of a PhD student (Marzieh Parsa) and Co-supervision of a Master student (Lukas Steiniger) in University of Cologne, Cologne, Germany
- 2014 – 2015 Teacher assistant for Atomic physics course in the level of Master of astronomy (Teacher: Prof. Dr. Andreas Eckart), Institute of theoretical 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

SCIENTIFIC COMMUNICATIONS

Invited talks and seminars

- August 2017 Invited seminar of “Near-infrared observations of the Galactic Center” in Instituto de Astrofisica de Andalucia, Granada, Spain

Contributed talks

- June 2017 “Polarized near-infrared emission from the Galactic center” in Polarised Emission from Astrophysical Jets, Ierapetra, Greece.
- September 2015 “Ks-band Near-infrared Polarized Observations of Sagittarius A*” in Annual meeting of the Astronomical society, Kiel, Germany.
- September 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.

OBSERVING PROPOSALS AND OBSERVATION SKILL

Observation proposals

- 2012 – 2017 Co-I of 27 Galactic Center ESO observational proposals.
- 2012 – 2014 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 Very Large Telescope in Paranal, Chile.
- May 2015 Performing Spectroscopy and integral field spectroscopy observations of Galactic Center with SINFONI instrument of ESO Very Large Telescope in Paranal, Chile.

PERSONAL SKILLS AND EXPERIENCE

- Computer skills Operating systems: *Unix/Linux, Windows*. Programing languages: *IDL, DPUSER, MATLAB, Python, R*, Astronomical Softwares: *Starfinder, GALAXEV(Bruzual,Charlot Code,2003)*, Software: *Microsoft Office (Word, PowerPoint, Excel), LaTeX, Sigmaplot*.
- Languages English (full professional proficiency), German (advanced, B2 level certificate), Persian (native, mother tongue), Arabic (basic).
- Outreach Wrote an invited article for The ESO’s Messenger magazine. Voluntary participated in an outreach event of EURAXESS Road Show at University of Cologne, Germany.

CONTACT OF REFERENCES

These persons are familiar with my professional qualifications and my character:

- **Prof. Dr. Andreas Eckart**
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- **Dr. Rainer Schödel**
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- **Prof. hon. Dr. J. Anton Zensus**
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