Maciek Wielgus

Max Planck Institute for Radio Astronomy
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EDUCATION

Warsaw University of Technology **02.2011 – 09.2016**
Ph.D. in Machine Design and Maintenance: Photonic Engineering (*with a distinction*)
Dissertation: Adaptive decomposition and analytic signal concept in the interferometric fringe pattern analysis

Warsaw University of Technology **10.2005 – 12.2010**
M.S. in Robotics and Automatic Control: Photonic Engineering (*interferometric fringe pattern analysis*)

Warsaw University **10.2007 – 09.2010**
B.S. in Mathematics: Numerical Analysis (*numerical partial differential equations*)

EMPLOYMENT

Max Planck Institute for Radio Astronomy, Bonn, Germany **10.2021 – present**
Research Scientist (*reference: Anton Zensus*)

Harvard University, Cambridge, USA **06.2017 – 08.2021**
Black Hole Initiative Postdoctoral Fellow (*reference: Shep Doeleman*)

Nicolaus Copernicus Astronomical Center, Warsaw, Poland **01.2017 – 05.2017**
Postdoctoral Researcher (*reference: Włodek Kluźniak, Marek Abramowicz*)

Institute of Electron Technology, Warsaw, Poland **03.2011 – 09.2013**
Engineer

LONGER RESEARCH VISITS

Visiting Researcher at Paris Observatory **07.2022, 06.2024**
Paris Observatory Scientific Council grant, Meudon, France (*reference: Frederic Vincent*)

Visiting Researcher at University of Valencia **03.2023**
Valencia, Spain (*reference: Ivan Marti-Vidal*)

Confronting Theories of Accretion with Observations, KITP Program **01.2017 – 03.2017**
Visiting Scholar, UCSB, Santa Barbara, USA

Internship at Center for Astrophysics | Harvard & Smithsonian **10.2015 – 12.2015**
Cambridge, USA (*mentors: Ramesh Narayan, Olek Sądowski*)

Visiting Scholar at Kavli Institute for Theoretical Physics, UCSB **06.2015**
Santa Barbara, USA (*mentors: Omer Blaes, Włodek Kluźniak*)

Visiting Scholar at Peking University Kavli Institute for Astronomy and Astrophysics **08.2014**
Beijing, China (*mentors: Marek Abramowicz, Fukun Liu*)

Visiting Scholar at University of Capetown **05.2014**
Capetown, South Africa (*mentor: George F. R. Ellis*)

Internship at National Center of the Industrial Technology **10.2013 – 11.2013**
Buenos Aires, Argentina (*mentors: Guillermo Kaufmann, Alejandro Federico*)

Internship at Center for Astrophysics | Harvard & Smithsonian **06.2013 – 08.2013**
Cambridge, USA (*mentors: Ramesh Narayan, Olek Sądowski*)

Internship at College of Charleston **05.2013 – 06.2013**
Charleston, USA (*mentor: Chris Fragile*)

RESEARCH INTERESTS

- astrophysics of compact objects
- very long baseline radio interferometry
- physics of accretion and AGN jets
- machine learning and AI for research in astronomy
- Event Horizon Telescope project
- observational tests of general relativity
- magnetohydrodynamics
- applied signal and image processing

AWARDS

EHT Early Career Award (individual)	**2020, 2021, 2022, 2023**
Group Award (A) from the Royal Astronomical Society (EHT collaboration)	**2021**
Albert Einstein medal (EHT collaboration)	**2020**
Bruno Rossi Prize for a contribution to High Energy Astrophysics (EHT collaboration)	**2020**
Breakthrough Prize in Fundamental Physics (EHT collaboration)	**2020**
Smithsonian Institute American Ingenuity Award (EHT collaboration)	**2019**
Black Hole Initiative Prize for scientific contributions to the EHT project (individual)	**2019**
National Science Foundation Diamond Achievement Award (EHT collaboration)	**2019**
First prize in IXth Nationwide Competition "Young Innovators" for the best PhD Thesis	**2017**
Polish Prime Minister Award for the best PhD thesis in Engineering	**2017**
Foundation for Polish Science START award (in 2015 with distinction as 1 of 5 young scientists nationwide)	**2015 – 2016**
First degree scientific performance team award from the President of the Warsaw University of Technology	**2014**
Academic performance award from Polish Ministry of Science and Higher Education	**2013**
Scientific scholarship and travel award from the Center for Advanced Studies Warsaw University of Technology	**2012 – 2013**
SPIE best student presentation award, International Conference on Advanced Topics in Optoelectronics, Microelectronics and Nanotechnology, Constanza, Romania	**2012**
Distinction in the PKOpto XXth prof. A. Smolinski national competition for the best master thesis in optoelectronics	**2011**
Laureate (6th place nationwide) of the National Mathematics Competition for high school students in Poland	**2005**

BIBLIOMETRICS

112 published or accepted reviewed journal papers, 140 items **listed on ADS** with 14230 citations, h-index=43, and 92 items cited at least 10 times (ADS, September 2024). 26 **ADS-listed** publications as a first author (including 18 reviewed journal papers), with a total of 544 citations, h-index=13, and 15 papers cited at least 10 times (ADS, September 2024). 43 reviewed journal papers as a first, second, or third author.

GRANTS AND FORMAL PROJECTS

M2FINDERS: Mapping Magnetic Fields with INterf. Down to Event hoRizon Scales **2021 – 2026**
ERC Advanced grant. Leader of 1/3 Working Packages. PI: J. Anton Zensus

Foreign Expert: Transformation of the form and method of education **2022 – 2024**
at the Silesian University in Opava, Czechia

PI: Dynamics of the Centaurus A jet base on a light-day scale **2022**

ALMA cycle 8 VLBI observations

Co-PI: Probing relativistic jets through mm-VLBI of X-ray binaries **2022**
GMVA VLBI observations, PI: Alex Tetarenko

Co-PI: Ultra-high resolution imaging of 3C84 **2022**
ALMA cycle 8 VLBI observations

PI: Thin disks GRRMHD simulations **2018 – 2022**
3×10^7 *CPU hours on PROMETHEUS supercomputer from PLGRID*

Named participant: Variable accretion flows **2013 – 2018**
Polish National Science Center Maestro Grant, PI: Wlodek Kluźniak

Co-PI: Adaptive processing of fringe patterns in optical whole-field measurements **2013 – 2015**
Polish National Science Center Opus Grant, PI: Krzysztof Patorski

PI: Advanced single-frame fringe processing algorithms **2012 – 2013**
Dean's Grant at the Faculty of Mechatronics, Warsaw University of Technology

PI: Automatic image analysis for nanomaterials research **2012 – 2014**
Foundation for Polish Science VENTURES Grant

Named participant: Turbulent viscosity in non-stationary black hole accretion disks **2012 – 2014**
Polish National Science Center Opus Grant, PI: Marek Abramowicz

OTHER ACTIVITIES

- leading the EHT Time Domain Working Group 2018-2022
- EHT Early Career Award 2020 "for his role and contributions to data processing, validation, and analysis of the 2017 EHT data, leading to the results published in the first six papers of the EHT"
- EHT Early Career Award 2021 "for his demonstration of the persistence of the M87 ring using years of historical EHT data"
- EHT Early Career Award 2022 "for his contribution to the calibration, analysis and interpretation of the EHT results of Sgr A*, and his leadership in the analysis and calibration of the ALMA data"
- EHT Early Career Award 2023 "for a leading role in analysis of NRAO 530 and J1924-2914 observations"
- key contributor to the EHT data set reduction and inspection pipeline development
- paper coordinator for the collaboration paper EHTC, ApJL 875 L3 (2019)
- key contributor and paper writing team member for a number of alphabetic-author-list EHT publications
- reviewer for MNRAS, A&A, ApJ, PRL, New Astronomy, Applied Optics, Optics Express, Optics Letters
- SOC member for EHT Polarization Workshop, Max-Planck Institute for Radio Astronomy, July 2019 and EHT Collaboration Meeting, Granada, June 2022
- mentoring multiple PhD and undergraduate students on their research projects: J. Vos, J. Roeder, W. Yan, D. Bollimpalli, S. Steel, D. Lancova, A. Yfantis, among others
- PhD co-supervisor of A. Yfantis at Radboud University, Netherlands (2024)
- jury member, MSc defence of L. F. Dias da Silva at Lisbone University (2024)
- named participant on tens of radio/VLBI observational proposals with EHT, GMVA, LMT, ALMA
- reviewer of grant proposals at the Czech Science Foundation in the Astronomy panel
- member of the Polish Astronomical Society and the European Astronomical Society
- active popularizer of astronomy

TEACHING EXPERIENCE

Lecturer of astrophysics at the Relativistic Accretion Workshop, University of Bremen **09.2016**
Transonic flows, ideal MHD, MRI

Teaching at Warsaw University of Technology **2011 – 2015**
Optomechatronics lab, Mechatronic systems lab, and Instrumental optics lab

Teaching assistant and tutor at Warsaw University **2010 – 2011**
Calculus I & II, linear algebra for math students

Teaching at Almukantarat astronomy club meetings for gifted youth **2006 – 2011**
Astronomy, physics, numerical methods

LANGUAGES

- **Polish** (native)
- **English** (fluent)
- **Spanish** (A2, learning in progress)

SELECTED RECENT PROFESSIONAL TALKS

I have given 100+ professional talks and presentations. Some recent talks below, full list on **wielgus.info**

20. 2024-07-19, COSPAR 2024: 45th Scientific Assembly, Busan, South Korea (invited talk),
19. 2024-06-20, Physics Department, Ecole Normale Supérieure, Paris, France (invited talk),
18. 2024-03-11, ASIAA, Taipei, Taiwan (invited seminar),
17. 2023-11-29, 25th RAGtime Meeting, Opava, Czechia (keynote conference talk),
16. 2023-10-16, Harvard/SAO/EHT Group Meeting, Cambridge, USA (invited seminar),
15. 2023-07-14, EAS Meeting 2023, Krakow, Poland (invited),
14. 2023-05-09, Goethe University, Frankfurt, Germany (invited seminar),
13. 2023-05-02, Radboud University, Nijmegen, Netherlands (invited seminar),
12. 2023-04-18, University of Geneva, Switzerland (invited seminar),
11. 2023-03-14, University of Valencia, Spain (invited seminar),
10. 2023-02-10, Improving Accretion Models with Plasma Theory workshop, Princeton, USA (invited),
9. 2023-01-12, Reconnection and Sgr A* flares workshop, Paris Observatory, Meudon, France (invited),
8. 2022-11-29, Astronomical Observatory of the University of Warsaw, Poland (invited seminar),
7. 2022-11-10, Chandra X-ray Space Telescope Operations Control Center, Burlington, USA (invited seminar),
6. 2022-11-02, HEAD CfA | Harvard & Smithsonian, Cambridge, USA (invited seminar),
5. 2022-09-14, 31st Texas Symposium on Relativistic Astrophysics, Prague, Czechia,
4. 2022-08-22, Max Planck Institute for Extraterrestrial Physics, Garching, Germany (invited seminar),
3. 2022-07-07, Paris Observatory, France (invited seminar),
2. 2022-06-09, KIPAC, Stanford University, USA (invited seminar, online),
1. 2022-05-20, 5th Black Hole Initiative Conference, Harvard University, USA (invited),

OUTREACH TALKS AND LECTURES 2019+

17. 2023-09-02, Astronomy Club Almukantarat 40th Anniversary, Frombork, Poland,
16. 2022-12-09, Astronomy Club at Sacred Heart Preparatory, Atherton, USA (online),
15. 2022-09-13, 31st Texas Symposium on Relativistic Astrophysics, Prague, Czechia (public talk),
14. 2022-05-17, Harvard University Science Center, Cambridge, USA (public talk and panel discussion),
13. 2021-11-17, XL Żeromski High School, Warsaw, Poland (invited talk for high school students),
12. 2021-07-16, Almukantarat Astronomy Club Summer Camp, Zalecze Wielkie, Poland (popular lecture),
11. 2021-03-29, N. Copernicus Astronomy Center: Meetings with Astronomy (outreach lecture series),
10. 2021-01-21, Copernicus Science Center, Warsaw, Poland (public lecture),
9. 2020-11-30, Photo: Science/Photography and Scientific Discourses, Prague, Czechia (keynote talk),
8. 2020-09-20, N. Copernicus Astronomy Center: Meetings with Astronomy (outreach lecture series),
7. 2020-03-04, Silesian University in Opava, Czechia (public lecture),
6. 2019-11-06, Mellow Mushroom pub, Charleston, USA (Astronomy on Tap pub talk),
5. 2019-09-23, PLNOG 23, Cracow, Poland (invited lecture at an IT conference),
4. 2019-09-14, PyCon PL 2019, Zawiercie, Poland (keynote lecture at an IT conference),
3. 2019-07-31, Polish Scientific Network in Boston meeting, MIT, Cambridge, USA (popular talk),
2. 2019-04-27, Copernicus Science Center, Warsaw, Poland (public talk),
1. 2019-04-15, Harvard University Science Center, USA (public talk and panel discussion)

Maciek Wielgus - complete list of papers. Updated: September 2024

Refereed journal papers

119. *Structure and Polarization of Centaurus A on Milliarcsecond scales*, Ni, C., Broderick, A., **Wielgus, M.**, et al., under internal EHTC review,
118. *A multi-frequency study of sub-parsec relativistic jets with the Event Horizon Telescope*, Roeder, J., **Wielgus, M.**, Lobanov, A., et al. + EHTC, under internal EHTC review,
117. *Imaging the black hole shadow and extended jet of M87*, Kim, J.-S., Mueller, H., Nikonov, A. + 5 authors, submitted to A&A, arXiv:2409.00540,
116. *Hot-spots around Sagittarius A*: Joint fits to astrometry and polarimetry*, Yfantis, A., **Wielgus, M.**, and Moscibrodzka, M., submitted to A&A, arXiv:2408.07120,
115. *The putative center in NGC 1052*, Baczko A.-K., Kadler, M., Ros, E., Fromm, C. M., **Wielgus, M.**, et al. + EHTC, submitted to A&A,
114. *Broadband Multi-wavelength Properties of M87 during the 2018 EHT Campaign and a Very High Energy Flaring Episode*, Algaba et al. + EHTC, submitted to A&A, arXiv:2404.17623,
113. *Kilogauss magnetic field and jet dynamics in the quasar NRAO 530*, Lisakov, M., Jorstad, S., **Wielgus, M.**, et al., submitted to A&A,
112. *Particle motion around luminous neutron stars: effects of deviation from Schwarzschild spacetime*, Vieira, R., and **Wielgus, M.**, PRD 110, 064010 (2024), arXiv:2403.01006,
111. *Circular Polarization of Simulated Images of Black Holes*, Yoshi, A., Prather, B., Chan, C.-K., **Wielgus, M.**, and Gammie, C., ApJ 972, 135 (2024), arXiv:2406.15653,
110. *First Very Long Baseline Interferometry Detections at 870 μm*, Raymond, A., Doeleman, S., et al. + EHTC, Astron. Journal 168:130 (2024),
109. *First VLBI detection of Fornax A*, Paraschos, G., **Wielgus, M.**, Benke, P. + 10 authors, A&A 687, L6 (2024), arXiv:2406.02660,
108. *Hotspots and Photon Rings in Spherically-Symmetric Spacetimes*, Kocherlakota, P., Rezzolla, L., Roy, R., and **Wielgus, M.**, MNRAS 531, 3606 (2024), arXiv:2403.08862,
107. *Fitting Sagittarius A* light curves with a hot spot model: Bayesian modeling of QU loops in millimeter band*, Yfantis, A., Moscibrodzka, M., **Wielgus, M.** + 2 authors, A&A 685, A142 (2024), arXiv:2310.07762,
106. *Polarized signatures of orbiting hot spots: special relativity impact and probe of spacetime curvature*, Vincent, F., **Wielgus, M.** + 3 authors, A&A 684, A194 (2024), arXiv:2309.10053,
105. *Orbital Polarimetric Tomography of a Flare Near Sagittarius A* Supermassive Black Hole*, Levis, A., Bouman, K., Chael, A., **Wielgus, M.**, and Srinivasan, P., Nat Astron 8, 765-773 (2024), arXiv:2310.07687,
104. *First Sagittarius A* Event Horizon Telescope Results. VIII. Physical Interpretation of the Polarized Ring*, EHTC, ApJL 964, L26 (2024),
103. *First Sagittarius A* Event Horizon Telescope Results. VII. Polarization of the Ring*, EHTC, ApJL 964, L25 (2024),
102. *Prospects for Future Experimental Tests of Gravity with Black Hole Imaging: Spherical Symmetry*, Kocherlakota, P., Rezzolla, L., Roy, R., and **Wielgus, M.**, PRD 109, 064064 (2024), arXiv:2307.16841,
101. *The internal Faraday screen of Sagittarius A**, **Wielgus, M.**, Issaoun, S., Marti-Vidal, I., + 5 authors, A&A 682, A97 (2024), arXiv:2308.11712,
100. *Ordered magnetic fields around the 3C 84 central black hole*, Paraschos, G. F., Kim, J.-Y., **Wielgus, M.**, et al. + EHTC, A&A 682, L3 (2024), arXiv:2402.00927,
99. *The persistent shadow of the supermassive black hole of M87 I. Observations, calibration, imaging and analysis*, EHTC, A&A 681, A79 (2024),
98. *Energy distribution and substructure formation in astrophysical MHD simulations*, Kayanikhoo, F., Cemeljic, M., **Wielgus, M.**, and Kluzniak, W., MNRAS 527, 10151 (2024), arXiv:2308.16062,
97. *A search for pulsars around Sgr A* in the first Event Horizon Telescope dataset*, Torne, P. et al. + EHTC, ApJ 959, 14 (2023), arXiv:2308.15381,
96. *Polarimetric geometric modeling for mm-VLBI observations of black holes using calibration-invariant data products*, Roelofs, F., Johnson, M., Chael, A., Janssen, M., **Wielgus, M.** et al. + EHTC, ApJL 957, L21 (2023),

95. *First M87 Event Horizon Telescope Results IX: Limits on Near-Horizon Circular Polarization*, EHTC, ApJL 957, L20 (2023), arXiv:2311.10976,
94. *Reference Array and Design Consideration for the next-generation Event Horizon Telescope*, Doeleman, S. S. et al., Galaxies 11(5), 107 (2023), arXiv:2306.08787,
93. *Orbital configurations of spaceborne interferometers for studying photon rings of supermassive black holes*, Hudson, B., Gurvits, L., **Wielgus, M.** + 3 authors, Acta Astronautica 213, 681-693 (2023), arXiv:2309.17127,
92. *The EB-correlation in Resolved Polarized Images: Connections to Astrophysics of Black Holes*, Emami, R., Doeleman, S., **Wielgus, M.**, et al., ApJ 955, 6 (2023), arXiv:2305.00387,
91. *Polarimetry and Astrometry of NIR Flares as Event Horizon Scale, Dynamical Probes for the Mass of Sgr A**, GRAVITY Collaboration et al., A&A 677, L10 (2023), arXiv:2307.11821,
90. *Unraveling Twisty Linear Polarization Morphologies in Black Hole Images*, Emami, R., Ricarte, A., Wong, G., + 26 authors, ApJ 950, 38 (2023), arXiv:2210.01218,
89. *Comparison of Polarized Radiative Transfer Codes used by the EHT Collaboration*, Prather, B., Dexter, J., Moscibrodzka, M., + 270 authors, ApJ 950, 35 (2023), arXiv:2303.12004,
88. *Key Science Goals for the Next-Generation Event Horizon Telescope*, Johnson, M., Akiyama, K., Blackburn, L., et al., Galaxies 11(3), 61 (2023), arXiv:2304.11188,
87. *Spectra of Puffy Accretion Discs: the kynbb Fit*, Lancova, D., Yilmaz, A., **Wielgus, M.**, + 3 authors, Astronomical Notes 344, e20230023 (2023), arXiv:2209.03713,
86. *The Event Horizon Telescope Image of the Quasar NRAO 530*, Jorstad, S., **Wielgus, M.**, Lico, R., + 267 authors, ApJ 943, 170 (2023), arXiv:2302.04622,
85. *Tracing hot spot motion using the next generation Event Horizon Telescope*, Emami, R., Tiede, P., Doeleman, S. S., Roelofs, F., **Wielgus, M.**, + 17 authors, Galaxies 11(1), 23 (2023), arXiv:2211.06773,
84. *Probing plasma composition with the next generation Event Horizon Telescope (ngEHT)*, Emami, R., Anantua, R., Ricarte, A., + 15 authors, Galaxies 11(1), 11 (2023), arXiv:2211.07306,
83. *Polarimetric signatures of hot spots in black hole accretion flows*, Vos, J., Moscibrodzka, M., and **Wielgus, M.**, A&A 668, A185 (2022), arXiv:2209.09931,
82. *Photon ring test of the Kerr hypothesis: variation in the ring shape*, Paugnat, H., Lupsasca, A., Vincent, F., and **Wielgus, M.**, A&A 668, A11 (2022), arXiv:2206.02781,
81. *Images and photon ring signatures of thick disks around black holes*, Vincent, F., Gralla, S., Lupsasca, A., and **Wielgus, M.**, A&A 667, A170 (2022), arXiv:2206.12066,
80. *Collimation of the relativistic jet in the quasar 3C 273*, Okino, H., Akiyama, K., Asada, K., +32 authors, ApJ 940, 65 (2022), arXiv:2112.12233,
79. *A first search of transients in the galactic center from 230 GHz ALMA observations*, Mus, A., Marti-Vidal, I., **Wielgus, M.**, and Stroud, G., A&A 666, A39 (2022), arXiv:2208.08248,
78. *Orbital motion near Sagittarius A*. Constraints from polarimetric ALMA observations*, **Wielgus, M.**, Moscibrodzka, M., Vos, J., Gelles, Z., + 5 authors, A&A 665, L6 (2022), arXiv:2209.09926,
77. *A robust test on the existence of primordial black holes in galactic dark matter halos*, Abramowicz, M., Bejger, M., Udalski, A., and **Wielgus, M.**, ApJL 935, L28 (2022), arXiv:2206.13335,
76. *The photon ring in M87**, Broderick, A., Pesce, D., Gold, R. + 48 authors, ApJ 935, 61 (2022), arXiv:2208.09004,
75. *Resolving the inner parsec of the blazar J1924–2914 with the Event Horizon Telescope*, Issaoun, S., **Wielgus, M.**, Jorstad, S., Krichbaum, T. + 264 authors, ApJ 934, 145 (2022), arXiv:2208.01662,
74. *Observational properties of puffy disks: radiative GRMHD spectra of mildly sub-Eddington accretion*, **Wielgus, M.**, Lancova, D., Straub, O., Kluzniak, W. + 6 authors, MNRAS 514, 780 (2022), arXiv:2202.08831,
73. *Characterizing and Mitigating Intraday Variability: Reconstructing Source Structure in Accreting Black Holes with mm-VLBI*, Broderick, A., Gold, R., Georgiev, B., + 264 authors, ApJL 930, L21 (2022),
72. *A Universal Power-law Prescription for Variability from Synthetic Images of Black Hole Accretion Flows*, Georgiev, B., Pesce, D., Broderick, A., Wong, G., Dhruv, V., **Wielgus, M.** + 263 authors, ApJL 930, L20 (2022),
71. *Millimeter Light Curves of Sagittarius A* Observed during the 2017 Event Horizon Telescope Campaign*, **Wielgus, M.**, Marchili, N., Marti-Vidal, I., Keating, G. K. + 263 authors, ApJL 930, L19 (2022), arXiv:2207.06829,

70. *Selective Dynamical Imaging of Interferometric Data*, Farah, J., Galison, P., Akiyama, K., Bouman, K., Bower, G., Chael, A., Fuentes, A., Gomez, J. L., Narayan, R., Honma, M., Johnson, M. D., Moriyama, K., Kofuji, Y., **Wielgus, M.** + 221 authors, ApJL 930, L18 (2022),
69. *First Sagittarius A* Event Horizon Telescope Results. VI. Testing the Black Hole Metric*, EHT Collaboration (270 authors), ApJL 930, L17 (2022),
68. *First Sagittarius A* Event Horizon Telescope Results. V. Testing Astrophysical Models of the Galactic Center Black Hole*, EHT Collaboration (274 authors), ApJL 930, L16 (2022),
67. *First Sagittarius A* Event Horizon Telescope Results. IV. Variability, Morphology, and Black Hole Mass*, EHT Collaboration (269 authors), ApJL 930, L15 (2022),
66. *First Sagittarius A* Event Horizon Telescope Results. III. Imaging of the Galactic Center Supermassive Black Hole*, EHT Collaboration (270 authors), ApJL 930, L14 (2022),
65. *First Sagittarius A* Event Horizon Telescope Results. II. EHT and Multiwavelength Observations, Data Processing, and Calibration*, EHT Collaboration (337 authors), ApJL 930, L13 (2022),
64. *First Sagittarius A* Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole in the Center of the Milky Way*, EHT Collaboration (388 authors), ApJL 930, L12 (2022),
63. *The science case and challenges of space-borne sub-millimeter interferometry*, Gurvits, L., Paragi, Z. + 52 authors, Acta Astronautica 196, 314-333 (2022), arXiv:2204.09144,
62. *MeqSilhouette v2: Spectrally-resolved polarimetric synthetic data generation for the Event Horizon Telescope*, Natarajan, I., Deane, R., Marti-Vidal, I., Roelofs, F., Janssen, M., **Wielgus, M.** +14 authors, MNRAS 512, 490 (2022), arXiv:2202.11478,
61. *The intrinsic structure of Sagittarius A* at 1.3 cm and 7 mm*, Cho, I., Zhao, G.-Y., Kawashima, T., +63 authors, ApJ 926, 108 (2022), arXiv:2112.04929,
60. *The Variability of the Black-Hole Image in M87 at the Dynamical Time Scale*, Satapathy, K., Psaltis, D., Ozel, F., Medeiros, L., Dougall, S. T., Chan, C., **Wielgus , M.**, +231 authors, ApJ 925, 13 (2022), arXiv:2111.01317,
59. *Photon rings of spherically symmetric black holes and robust tests of non-Kerr metrics*, **Wielgus , M.**, PRD 104, 124058 (2021), arXiv:2109.10840,
58. *Event Horizon Telescope observations of the jet launching and collimation zone in Centaurus A*, Janssen, M., Falcke, H., Kadler, M., Ros, E., **Wielgus, M.**, +266 authors, Nat Astron 5, 1017-1028 (2021), arXiv:2111.03356,
57. *Persistent Non-Gaussian Structure in the Image of Sagittarius A* at 86 GHz*, Issaoun, S., Johnson, M., Blackburn, L., Broderick, A., Tiede, P., **Wielgus, M.**, + 23 authors, ApJ 915, 99 (2021), arXiv:2104.07610,
56. *Three-dimensional general relativistic Poynting-Robertson effect. IV. Slowly rotating and non-spherical quadrupolar massive source*, De Falco, V., **Wielgus , M.**, PRD 103, 084056 (2021), arXiv:2103.17165,
55. *Constraints on black-hole charges with the 2017 EHT observations of M87**, Kocherlakota, P. + 236 authors, PRD 103, 104047 (2021), arXiv:2105.09343,
54. *The Polarized Image of a Synchrotron Emitting Ring of Gas Orbiting a Black Hole*, Narayan, R., et al., ApJ 912, 35 (2021), arXiv:2105.01804,
53. *Light echos and coherent autocorrelations in a black hole spacetime*, Chesler, P., Blackburn, L., Doeleman, S., Johnson, M., Moran, J., Narayan, R., **Wielgus , M.**, Class. Quantum Grav. 38, 13 (2021), arXiv:2012.11778,
52. *Broadband Multi-wavelength Properties of M87 During the 2017 Event Horizon Telescope Campaign*, Algaba, J. C., + 744 authors, ApJL 911, L11 (2021), arXiv:2104.06855,
51. *Polarimetric Properties of Event Horizon Telescope Targets from ALMA*, Goddi, C., + 249 authors, ApJL 910, L14 (2021),
50. *First M87 Event Horizon Telescope Results. VIII. Magnetic Field Structure near The Event Horizon*, EHT Collaboration (240 authors), ApJL 910, L13 (2021),
49. *First M87 Event Horizon Telescope Results. VII. Polarization of the Ring*, EHT Collaboration (239 authors), ApJL 910, L12 (2021),
48. *Elliptical accretion disk as a model for TDEs*, Liu, F., Cao, C., Abramowicz, M., **Wielgus, M.**, Cao, R., Zhou, Z., ApJ 908, 179 (2021), arXiv:2012.05552,
47. *Geometric modeling of M87* as a Kerr black hole or a non-Kerr compact object*, Vincent, F., **Wielgus, M.**, Abramowicz, M., Gourgoulhon, E., J. P. Lasota, + 2 authors, A&A 646, A37 (2021), arXiv:2002.09226,

46. *Reflection-asymmetric wormholes and their double shadows*, **Wielgus, M.**, Horák, J., Vincent, F., Abramowicz, M., PRD 102, 084044 (2020), arXiv:2008.10130,
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