

Maciek Wielgus

Complete list of papers. Updated: September 2024

Papers relevant for the 2025 MERAC prize nomination

22. *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,
21. *Hotspots and Photon Rings in Spherically-Symmetric Spacetimes*, Kocherlakota, P., Rezzolla, L., Roy, R., and **Wielgus, M.**, MNRAS 531, 3606 (2024), arXiv:2403.08862,
20. *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,
19. *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,
18. *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,
17. *First Sagittarius A* Event Horizon Telescope Results. VIII. Physical Interpretation of the Polarized Ring*, EHTC, ApJL 964, L26 (2024),
16. *First Sagittarius A* Event Horizon Telescope Results. VII. Polarization of the Ring*, EHTC, ApJL 964, L25 (2024),
15. *The internal Faraday screen of Sagittarius A**, **Wielgus, M.**, Issaoun, S., Marti-Vidal, I., + 5 authors, A&A 682, A97 (2024), arXiv:2308.11712,
14. *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,
13. *Tracing hot spot motion using the next generation Event Horizon Telescope*, Emami, R., Tiede, P., Doleman, S. S., Roelofs, F., **Wielgus, M.**, + 17 authors, Galaxies 11(1), 23 (2023), arXiv:2211.06773,
12. *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,
11. *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,
10. *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,
9. *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,
8. *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),
7. *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,
6. *First Sagittarius A* Event Horizon Telescope Results. VI. Testing the Black Hole Metric*, EHT Collaboration (270 authors), ApJL 930, L17 (2022),
5. *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),
4. *First Sagittarius A* Event Horizon Telescope Results. IV. Variability, Morphology, and Black Hole Mass*, EHT Collaboration (269 authors), ApJL 930, L15 (2022),
3. *First Sagittarius A* Event Horizon Telescope Results. III. Imaging of the Galactic Center Supermassive Black Hole*, EHT Collaboration (270 authors), ApJL 930, L14 (2022),
2. *First Sagittarius A* Event Horizon Telescope Results. II. EHT and Multiwavelength Observations, Data Processing, and Calibration*, EHT Collaboration (337 authors), ApJL 930, L13 (2022),
1. *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),

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98. *Structure and Polarization of Centaurus A on Milliarcsecond scales*, Ni, C., Broderick, A., **Wielgus, M.**, et al., under internal EHTC review,
97. *The Event Horizon General Relativistic Magnetohydrodynamic Code Comparison Project: Magnetically Arrested Disks*, Olivares, H. et al. + EHTC, under internal EHTC review,
96. *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,
95. *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,
94. *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,
93. *Kilogauss magnetic field and jet dynamics in the quasar NRAO 530*, Lisakov, M., Jorstad, S., **Wielgus, M.**, et al., submitted to A&A,
92. *Broadband Multi-wavelength Properties of M87 during the 2018 EHT Campaign and a Very High Energy Flaring Episode*, Algaba et al. + EHTC, accepted in A&A, arXiv:2404.17623,
91. *Particle motion around luminous neutron stars: effects of deviation from Schwarzschild spacetime*, Vieira, R., and **Wielgus, M.**, PRD 110, 064010 (2024), arXiv:2403.01006,
90. *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,
89. *First Very Long Baseline Interferometry Detections at 870 μ m*, Raymond, A., Doeleman, S., et al. + EHTC, Astron. Journal 168:130 (2024),
88. *First VLBI detection of Fornax A*, Paraschos, G., **Wielgus, M.**, Benke, P. + 10 authors, A&A 687, L6 (2024), arXiv:2406.02660,
87. *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,
86. *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,
85. *The persistent shadow of the supermassive black hole of M87 I. Observations, calibration, imaging and analysis*, EHTC, A&A 681, A79 (2024),
84. *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,
83. *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,
82. *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),
81. *First M87 Event Horizon Telescope Results IX: Limits on Near-Horizon Circular Polarization*, EHTC, ApJL 957, L20 (2023), arXiv:2311.10976,
80. *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,
79. *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,
78. *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,
77. *Unraveling Twisty Linear Polarization Morphologies in Black Hole Images*, Emami, R., Ricarte, A., Wong, G., + 26 authors, ApJ 950, 38 (2023), arXiv:2210.01218,
76. *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,
75. *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,

74. *Spectra of Puffy Accretion Discs: the kynbb Fit*, Lancova, D., Yilmaz, A., **Wielgus, M.**, + 3 authors, *Astronomical Notes* 344, e20230023 (2023), arXiv:2209.03713,
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71. *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,
70. *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,
69. *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,
68. *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,
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65. *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),
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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,
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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,
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51. *Polarimetric Properties of Event Horizon Telescope Targets from ALMA*, Goddi, C., + 249 authors, *ApJL* 910, L14 (2021),

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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,
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41. *THEMIS: A Parameter Estimation Framework for the Event Horizon Telescope*, Broderick, A., + 193 authors, *ApJ* 897, 139 (2020),
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