

Kirill Sokolovsky

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Scientific interests

- The role of shocks in the origin of multiwavelength emission from novae and blazars
- Search for exotic Galactic transients
- Identification of variable stars and time series analysis techniques
- Flickering as a common feature of accreting systems

Technical skills

- Experienced user of VLA, *TESS*, *NuSTAR*, *Swift*, small to medium-size optical telescopes. Observation planning and data experience with VLBA, EVN, *XMM-Newton*, *Chandra*.
- Proposal PI: VLA, *NuSTAR*, *Chandra*, *XMM-Newton*, *Swift*, *TESS*, *RadioAstron*, GTC 10.4 m
- Observing experience with Effelsberg 100 m radio telescope (support of mm-VLBI); optical: SOAR 4.1 m, DECam/Blanco 4 m, Aristarchos 2.3 m, small telescopes
- Linux programming in C, BASH, Python
- Familiar with SCHED, Difmap, AIPS, CASA; XSPEC; SExtractor, SWarp, Astrometry.net
- Experience using MSU's High Performance Computing Cluster and Illinois Campus Cluster

Education and Employment

- 2025 – present Postdoctoral researcher at Texas Tech University, USA
- Deploying the new bright Galactic transients survey station
- 2022 – 2025 Postdoctoral researcher at University of Illinois Urbana-Champaign, USA
- Developed an image subtraction pipeline for AGN photometry with *TESS*
- 2021 – 2022 SOAR 4.1 m telescope operations support at Michigan State University, USA
- Developed code for tracking calibration drift of Goodman Spectrograph, including an online tool for computing focus temperature correction ^I
- 2018 – 2021 Postdoctoral researcher at Michigan State University, USA
- Multiwavelength observations of Galactic novae^{II} focusing on X-ray spectroscopy with *NuSTAR* and radio monitoring with the VLA
 - Developed a code for periodicity search in photon arrival times^{III}

^I<https://kirxkirx.github.io/goodfoc/>

^{II}see Selected publications

^{III}<https://github.com/kirxkirx/patpc>

- Constructed a 🍷-based GPS+NTP server for MSU Observatory clock
- 2015 – Postdoctoral researcher at the National Observatory of Athens, Greece
- 2018
- Developed the variability detection algorithm for the ESA’s *Hubble* Catalog of Variables^{IV}
 - Co-investigated the novel machine learning approach to variability detection
- 2011 – Postdoctoral researcher, Astro Space Center, Lebedev Phys. Inst., Moscow, Russia
- 2015
- Designed an automated planning tool for the *RadioAstron* Space-VLBI AGN survey
 - Implemented automated generation and distribution of ground radio telescope *vex* schedules
- 2011 – Software engineer (part time), Sternberg Institute, Moscow State University, Russia
- 2015
- Developed the Variability Search Toolkit (VaST)^V and applied it for variable stars discovery using digitized photographic plates
 - Designed the transient detection pipeline and image archive for the NMW^{VI} nova patrol. Co-discovered Nova Sgr 2012 No. 1, Nova Cas 2020, Nova Per 2020, Nova Vul 2024, Nova Sgr 2025 No. 3., Nova Ser 2025
 - Designed a web-based lightcurve period search tool^{VII}
- 2008 – Ph.D. student at the Max Planck Institute for Radio Astronomy, Bonn, Germany
- 2011
- Thesis *Multi-frequency study of relativistic jets in active galactic nuclei*^{VIII} defended at the University of Cologne; advisor Y. Kovalev; referees: Y. Shao, A. Eckart, J. A. Zensus
- 2001 – Physics department, Moscow State University, Russia
- 2008
- Diploma thesis *Properties of GHz-peaked spectrum sources from RATAN-600 and VLBA observations* (in Russian); advisor: Y. Kovalev

Recent papers with my essential contribution

- [1] Tarasenkov, A., **Sokolovsky, K.**, and 12 colleagues 2025. *TCP J07222683+6220548: A New AM CVn Type System with Infrequent Outbursts*. Research in Astronomy and Astrophysics Volume 25, Issue 7, id.075017, 14 pp.
- [2] **Sokolovsky, K. V.** and 43 colleagues 2023. *The multiwavelength view of shocks in the fastest nova V1674 Her*. Monthly Notices of the Royal Astronomical Society 521, 5453-5472.
- [3] **Sokolovsky, K. V.** and 18 colleagues 2022. *The first nova eruption in a novalike variable: YZ Ret as seen in X-rays and γ -rays*. Monthly Notices of the Royal Astronomical Society 514, 2239-2258.
- [4] **Sokolovsky, K. V.** and 15 colleagues 2022. *IRXH J082623.6–505741: A New Long-period Cataclysmic Variable with an Evolved Donor and a Low Mass-transfer Rate*. The Astrophysical Journal 934. 142

h-index= 34 computed over all the co-authored publications listed in NASA ADS.

^{IV}<https://archive.stsci.edu/hlsp/hcv>

^V<https://github.com/kirxkirx/vast>

^{VI}<http://scan.sai.msu.ru/nmw/>

^{VII}<http://scan.sai.msu.ru/lk/>

^{VIII}Available at <http://kups.ub.uni-koeln.de/4135/>

Community service, teaching and outreach

- Peer reviewer for *Nature*, *Science Advances*, *ApJ*, *AJ*, *A&A*, *MNRAS*, *PASP*, *PASJ*, *PASA*, *Bulgarian Astronomical Journal*, *European Physical Journal C*, *Solar System Research*, *Acta Astronautica*, *Fermi/LAT* collaboration (internal paper review)
- “2019, 2022, 2023, 2025 subject-matter expert reviewer in a NASA peer review.” External reviewer for Chilean CONICYT.
- Participated in the “MSU Observatory Research Program” training students in observational astronomy techniques using the MSU Observatory 24’ telescope
- Re-designed an online introduction to astronomy course for non-STEM majors at Michigan State University and presented it to 30+ students in Summer 2022
- Presented two live lectures (100+ students) of the introduction to astronomy course at Michigan State University temporary replacing Prof. Laura Chomiuk
- I maintain close collaboration with the community of amateur astronomers: NMW survey^{IV}, observations of novae^{IX}, AAVSO campaigns on the microlensing event Gaia16aye^X and blazars 3C 273 and 3C 279^{XI}

Research funding

- 2025 – *TESS* GI Cycle 8 Proposal 8150 *TESS FFI search for ultrafast novae and other fast Galactic transients* (PI) “highly ranked and is in the selectable range... decision deferred”
- 2026
- 2025 – *Chandra* Cycle 27 Proposal 27300310 *High energy gratings spectroscopy of novae* (PI) approved, 2026 no Phase 2 call yet
- 2024 – *Chandra* Cycle 26 Proposal 26300180 *High energy gratings spectroscopy of novae* (PI), \$ 31 000 2025 (trigger canceled due to unexpected brightening of SSS component)
- 2024 – *NuSTAR* GO Cycle 10 proposal 10185 *Tracing shock development in a nova* (PI), \$ 91 923 (not triggered for the lack of a suitable target) 2025
- 2023 – *TESS* GI Cycle 6 proposal 6143 *TESS Search For Ultrafast Classical Novae* (PI), \$ 70 000 2024
- 2023 – *NuSTAR* GO Cycle 9 proposal 9198 *Understanding the γ -ray production in nova shocks* (PI), 2024 \$ 72 717
- 2022 – *Swift* Cycle 18 proposal 1821098 *In search of shocks in novae* (PI), \$ 38 000 (not triggered for the 2023 lack of a suitable target)
- 2022 – *XMM-Newton* AO-21 proposal 90327 *Grating spectroscopy of shocked nova ejecta* (PI), \$ 50 000
- 2023 – *NuSTAR* GO Cycle 8 proposal 8136 *Understanding the γ -ray production mechanism in nova shocks* 2023 (PI), \$ 92 449
- 2020 – *NuSTAR* GO Cycle 6 proposal 6164 *Understanding the γ -ray production mechanism in nova shocks* 2021 (PI), \$ 70 591
- 2019 – *NuSTAR* GO Cycle 5 proposal 5138 *Understanding the γ -ray production mechanism in nova shocks* 2020 (PI), \$ 66 591 (not triggered for the lack of a suitable target)

Last updated: October 21, 2025

^{IX}<http://www.astronomerstelegam.org/?read=13804>

^X<https://www.aavso.org/aavso-alert-notice-552>

^{XI}<https://www.aavso.org/aavso-alert-notice-430>