

GRAYSON C. PETTER

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Observational astrophysicist studying accreting supermassive black holes and the connections to their host halos and galaxies. Interested in revealing black hole-galaxy coevolution through statistical studies of active galactic nuclei found in large surveys. Currently focused on studying how different classes of AGN populate the large-scale structure of the Universe, or how they occupy their host dark matter halos.

EDUCATION

Physics and Astronomy Ph.D. Candidate
Department of Physics & Astronomy,
Dartmouth College.

Sept 2019 – May 2024

Bachelor of Science in Physics, Bachelor of Science in Astronomy
Department of Physics,
University of Kansas.

Aug 2015 – May 2019

PUBLICATIONS

First Author:

1. “Host Dark Matter Halos of WISE-selected Obscured and Unobscured Quasars: Evidence for Evolution”, **Grayson C. Petter**, Ryan C. Hickox, David M. Alexander, Adam D. Myers, James E. Geach, Kelly E. Whalen, and Carolina P. Andonie, 2023, *The Astrophysical Journal*, doi:<https://doi.org/10.3847/1538-4357/acb7ef>
2. “Host Dark Matter Halos of SDSS Red and Blue Quasars: No Significant Difference in Large-scale Environment”, **Grayson C. Petter**, Ryan C. Hickox, David M. Alexander, James E. Geach, Adam D. Myers, David J. Rosario, Victoria A. Fawcett, Lizelke Klindt, and Kelly E. Whalen, 2022, *The Astrophysical Journal*, doi:[10.3847/1538-4357/ac4d31](https://doi.org/10.3847/1538-4357/ac4d31)
3. “Deviations from the Infrared-radio Correlation in Massive, Ultracompact Starburst Galaxies”, **Grayson C. Petter**, Amanda A. Kepley, Ryan C. Hickox, Gregory H. Rudnick, Christy A. Tremonti, Aleksandar M. Diamond-Stanic, James E. Geach, Alison L. Coil, Paul H. Sell, John Moustakas, David S. N. Rupke, Serena Perrotta, Kelly E. Whalen and Julie D. Davis, 2020, *The Astrophysical Journal*, doi:[10.3847/1538-4357/abb19d](https://doi.org/10.3847/1538-4357/abb19d)

Co-author:

- “Obscuration beyond the nucleus: infrared quasars can be buried in extreme compact starbursts”, Andonie, Carolina et al., 2023, *Monthly Notices of the Royal Astronomical Society*, submitted
- “Extending the Dynamic Range of Galaxy Outflow Scaling Relations: Massive Compact Galaxies with Extreme Outflows”, Julie D. Davis et al., 2023, *The Astrophysical Journal*,
- “The Ionization and Dynamics of the Makani Galactic Wind”, David S.N. Rupke et al., 2023, *The Astrophysical Journal*, doi:[10.3847/1538-4357/acbfae](https://doi.org/10.3847/1538-4357/acbfae)
- “A panchromatic view of infrared quasars: excess star formation and radio emission in the most heavily obscured systems”, Carolina P. Andonie et al., 2022, *Monthly Notices of the Royal Astronomical Society*, doi:[10.1093/mnras/stac2800](https://doi.org/10.1093/mnras/stac2800)
- “The Space Density of Intermediate Redshift, Extremely Compact, Massive Starburst Galaxies”, Kelly E. Whalen et al., 2022, *The Astronomical Journal*, doi:[10.3847/1538-3881/ac958f](https://doi.org/10.3847/1538-3881/ac958f)
- “TESS Hunt for Young and Maturing Exoplanets (THYME). VII. Membership, Rotation, and Lithium in the Young Cluster Group-X and a New Young Exoplanet”, Elisabeth R. Newton et al., 2022, *The Astrophysical Journal*, doi:[10.3847/1538-3881/ac8154](https://doi.org/10.3847/1538-3881/ac8154)

- “Physical Properties of Massive Compact Starburst Galaxies with Extreme Outflows”, Serena Perrotta et al., 2021, *The Astrophysical Journal*, doi:10.3847/1538-3881/ac8154
- “Compact Starburst Galaxies with Fast Outflows: Central Escape Velocities and Stellar Mass Surface Densities from Multiband Hubble Space Telescope Imaging”, Aleksandar M. Diamond-Stanic et al., 2021, *The Astrophysical Journal*, doi:10.3847/1538-4357/abe935
- “The GOGREEN and GCLASS surveys: first data release”, Michael L. Balogh et al., 2021, *Monthly Notices of the Royal Astronomical Society*, doi:10.1093/mnras/staa3008

PRESENTATIONS

Talks:

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- “Physical Models for the Clustering of Obscured and Unobscured Quasars”; What drives the growth of black holes?, Sept 26-29 2022, Reykjavik, Iceland.
 - “Host Dark Matter Halos of Obscured and Unobscured Quasars”; Panchromatic view of the life-cycle of AGN, Sept 14-16 2022, Madrid, Spain.
 - “Host Halos/Galaxies of Obscured and Unobscured Quasars”; New England Regional Quasar and AGN Meeting, May 26 2022, Storrs, Connecticut.
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Posters:

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- “Unveiling Star Formation and its Demise in Ultra-compact Post-merger Galaxies using Jansky VLA Continuum Measurements”; American Astronomical Society Meeting 233, Jan 6-10 2019, Seattle, Washington.
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OBSERVING EXPERIENCE

Principal Investigator:

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- SALT 2022-2 RSS Spectroscopy: Characterizing Heavily Obscured Quasars Missed by X-ray Surveys.
 - SALT 2023-1 RSS Spectroscopy: Characterizing Heavily Obscured Quasars Missed by X-ray Surveys.
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Co-investigator

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- VLA 2018A: Probing Dust-Obscured Star Formation in Massive Ultra-compact Galaxies.