

# WAQAS A. BHATTI

waqas.afzal.bhatti@gmail.com  
<https://github.com/waqasbhatti>  
<https://wbhatti.org>

## Interests and Recent Work

Engineering of data extraction, analysis, and archiving infrastructure for large astronomical surveys; Time domain astronomy; Variable stars; Eclipsing binaries; Low mass stars; Stellar populations in the Galaxy

## Education

- **Johns Hopkins University** — Doctor of Philosophy in Physics & Astronomy, August 2012
  - ▷ Dissertation: “Testing Low-mass Stellar Models with M-dwarf Eclipsing Binaries from SDSS Stripe 82” ([PDF copy](#))
  - ▷ Dissertation Advisor: Professor Holland C. Ford, Department of Physics and Astronomy
- **University of California, Los Angeles** — Bachelor of Science in Physics, June 2005

## Work Experience

- **2015-09-01 to 2019-08-31: Associate Research Scholar**  
**Department of Astrophysical Sciences, Princeton University**
  - ▷ Developed and maintain [Astrobase](#), an open-source Python package to analyze large collections of astrophysical time-series data (light curves), filter and browse them interactively, and search for and characterize stellar variability.
  - ▷ Developed and maintain the [HAT Data Server](#), an interactive web search interface and portal for all publicly released HAT Exoplanet Survey light curve data. Organized the public release of 5 million light curves from the HATNet Exoplanet Survey via this service. The [code running this service](#) is available under an open source license.
  - ▷ Developing the [photometry data calibration pipeline](#), computing infrastructure, and testing prototype instrument components for the [HATPI](#) Exoplanet Survey.
  - ▷ Manage HAT data processing and computing infrastructure, including: hardware purchasing and maintenance, image calibration and photometry data pipeline maintenance, network improvements, monitoring, and backups for the [HATNet](#), [HATSouth](#), [HATPI](#), and [CHAT](#) projects.
- **2012-09-01 to 2015-08-31: Postdoctoral Research Associate**  
**Department of Astrophysical Sciences, Princeton University**
  - ▷ Observation scheduling, image data calibration and generation of photometry time-series data (light curves) for the HATNet transiting exoplanet candidate follow-up photometry program, using the 1.2-m telescope and KeplerCam at the Fred Lawrence Whipple Observatory (FLWO), Arizona.

- ▷ Observing HATNet transiting exoplanet candidates with the Apache Point Observatory 3.5-m telescope and the Echelle spectrograph instrument. Qualified for remote observation after on-site training on May 5–9, 2014.
  - ▷ Developed and maintain [HAT remotecontrol](#) — a real-time monitoring and control interface for HATNet and HATSouth telescopes.
  - ▷ Set up and maintain the HATSouth Exoplanet Survey [globally distributed database](#) for the image calibration pipeline running on remote observation sites at Las Campanas Observatory, Chile; HESS Observatory, Namibia; and Siding Spring Observatory, Australia.
  - ▷ Developed and maintain websites for the [HATNet](#) and [HATSouth](#) surveys, including curating discovery and follow-up data made publicly available for exoplanets found by these two surveys.
- **2006-09-01 to 2012-08-31: Graduate Student Research Assistant**  
**Department of Physics & Astronomy, Johns Hopkins University**
    - ▷ [As Part 2 of PhD thesis](#), led project to identify M dwarf eclipsing binaries in SDSS Stripe 82 and characterize their discrepancies with predictions from stellar models.
    - ▷ [As Part 1 of PhD thesis](#), led project to improve upon SDSS Stripe 82 photometric precision, then detect and classify variables and periodic variables from these sparsely sample time-series data.
  - **2005-09-01 to 2006-05-30: Graduate Student Teaching Assistant**  
**Department of Physics & Astronomy, Johns Hopkins University**
    - ▷ Taught discussion sections for 171.101 (General Physics for Physical Science Majors I — Fall 2005) and 171.102 (General Physics for Physical Science Majors II — Spring 2006).
    - ▷ Led laboratory sessions for 173.111 (Lab for General Physics for Physical Science Majors I — Fall 2005) and 173.112 (Lab for General Physics for Physical Science Majors II — Spring 2006).
    - ▷ Tutored undergraduate students for General Physics courses 171.101 and 171.102 (for physical science majors), 171.103 and 171.104 (for biological science majors).

## Qualifications and Technical Skills

- **Astronomy** — IDL, IRAF, photometric/spectroscopic data calibration and reduction pipelines
- **Programming (Python)** — scientific (NumPy, SciPy, Pandas, Matplotlib, Astropy, scikit-learn, Cython), web (Tornado, Django), databases (SQLAlchemy, psycopg2, cassandra-driver), and distributed systems (ZeroMQ via pyzmq, RabbitMQ via pika and celery)
- **Programming (other)** — basic C and C++, Amazon Web Services (S3, SQS, EC2, Batch)
- **Databases** — general SQL and schema design, SQLite, PostgreSQL, MySQL/MariaDB (& Galera Cluster), Cassandra
- **Web** — HTML, Javascript, CSS, basic web design & frameworks (Foundation, Bootstrap)
- **Other** — shell scripting,  $\LaTeX$ , Linux system administration (server hardware, config management with Ansible, networks)

See [Github profile](#) for publicly available and open source code.

## Research Grants

- Co-Investigator on “Difference Imaging of Star Clusters at Low Galactic Latitudes”, NASA TESS Guest Investigator Program, G011103 (July 2018 to June 2020)
- Co-Investigator on “Finding and Characterizing a Large and Diverse Population of Transiting Exoplanets with HAT- South in Support of NASA Space Missions”, NASA Exoplanets Research Program XRP16\_2-0070 (2017-01-01 to 2020-12-31)

## Professional Service

### Peer Review

- Peer reviewer for the 2018-2XRP NASA Exoplanet Research Program (2019)
- Peer reviewer for the American Astronomical Society’s *Astronomical Journal* (2016–2017)
- Peer reviewer for the NASA Kepler K2 Mission Guest Observer Program Cycle 1 (2014)

### Outreach

- Developer and maintainer of the [Princeton Astro-coffee](#) website for astro-ph arXiv article discussion with voting (2014 to date)
- Exhibit presenter and volunteer, Princeton University Science and Engineering EXPO (2013)
- Exhibit presenter and volunteer, Johns Hopkins University Science Fair (2006–2010)

## References

Available on request.

## Refereed Publications

See [NASA ADS](#) or [arXiv](#) for more up-to-date lists.

- Bouma, L. G., Winn, J. N., Baxter, C., **Bhatti, W.**, Dai, F., Daylan, T., Désert, J.-M., Hill, M. L., Kane, S. R., Stassun, K. G., Villaseñor, J., Ricker, G. R., Vanderspek, R., Latham, D. W., Seager, S., Jenkins, J. M., Berta-Thompson, Z., Colón, K., Fausnaugh, M., Glidden, A., Guerrero, N., Rodríguez, J. E., Twicken, J. D., & Wohler, B. 2019, “WASP-4b Arrived Early for the TESS Mission”, *Astronomical Journal*, **157**, 217, arXiv:1903.02573
- Jordán, A., Brahm, R., Espinoza, N., Cortés, C., Díaz, M., Drass, H., Henning, T., Jenkins, J. S., Jones, M. I., Rabus, M., Rojas, F., Sarkis, P., Vučković, M., Zapata, A., Soto, M. G., Bakos, G. Á., Bayliss, D., **Bhatti, W.**, Csubry, Z., Lachaume, R., Moraga, V., Pantoja, B., Osip, D., Shporer, A., Suc, V., & Vásquez, S. 2019, “K2-287 b: An Eccentric Warm Saturn Transiting a G-dwarf”, *Astronomical Journal*, **157**, 100, arXiv:1809.08879
- Hartman, J. D., Bakos, G. Á., Bayliss, D., Bento, J., **Bhatti, W.**, Brahm, R., Csubry, Z., Espinoza, N., Henning, T., Jordán, A., Mancini, L., Penev, K., Rabus, M., Sarkis, P., Suc, V., de Val-Borro, M., Zhou, G., Addison, B., Arriagada, P., Butler, R. P., Crane, J., Durkan, S., Shectman, S., Tan, T. G., Thompson, I., Tinney, C. G., Wright, D. J., Lázár, J., Papp, I., & Sári, P. 2019, “HATS-60b-HATS-69b: 10 Transiting Planets from HATSouth”, *Astronomical Journal*, **157**, 55, arXiv:1809.01048
- Wallace, J. J., Hartman, J. D., Bakos, G. Á., & **Bhatti, W.** 2019, “Ultralow-amplitude RR Lyrae Stars in M4”, *Astrophysical Journal Letters*, **870**, L7, arXiv:1812.07552
- Zhou, G., Bakos, G. Á., Bayliss, D., Bento, J., **Bhatti, W.**, Brahm, R., Csubry, Z., Espinoza, N., Hartman, J. D., Henning, T., Jordán, A., Mancini, L., Penev, K., Rabus, M., Sarkis, P., Suc, V., de Val-Borro, M., Rodríguez, J. E., Osip, D., Kedziora-Chudczer, L., Bailey, J., Tinney, C. G., Durkan, S., Lázár, J., Papp, I., & Sári, P. 2019, “HATS-70b: A 13 MJ Brown Dwarf Transiting an A Star”, *Astronomical Journal*, **157**, 31, arXiv:1811.06925
- Becker, J. C., Vanderburg, A., Rodríguez, J. E., Omohundro, M., Adams, F. C., Stassun, K. G., Yao, X., Hartman, J., Pepper, J., Bakos, G., Barentsen, G., Beatty, T. G., **Bhatti, W.**, Chontos, A., Collier Cameron, A., Hellier, C., Huber, D., James, D., Kuhn, R. B., Lund, M. B., Pollacco, D., Siverd, R. J., Stevens, D. J., Cardoso, J. V. d. M., & West, R. 2019, “A Discrete Set of Possible Transit Ephemerides for Two Long-period Gas Giants Orbiting HIP 41378”, *Astronomical Journal*, **157**, 19, arXiv:1809.10688
- Oláh, K., Rappaport, S., Borkovits, T., Jacobs, T., Latham, D., Bieryla, A., Bíró, I. B., Bartus, J., Kővári, Z., Vida, K., Vanderburg, A., LaCourse, D., Csányi, I., Bakos, G. Á., **Bhatti, W.**, Csubry, Z., Hartman, J., & Omohundro, M. 2018, “Eclipsing spotted giant star with K2 and historical photometry”, *Astronomy and Astrophysics*, **620**, A189, arXiv:1810.03925
- Sarkis, P., Henning, T., Hartman, J. D., Bakos, G. Á., Brahm, R., Jordán, A., Bayliss, D., Mancini, L., Espinoza, N., Rabus, M., Csubry, Z., **Bhatti, W.**, Penev, K., Zhou, G., Bento, J., Tan, T. G., Arriagada, P., Butler, R. P., Crane, J. D., Shectman, S., Tinney, C. G., Wright, D. J., Addison, B., Durkan, S., Suc, V., Buchhave, L. A., de Val-Borro, M., Lázár, J., Papp, I., & Sári, P. 2018, “HATS-59b,c: A Transiting Hot Jupiter and a Cold Massive Giant Planet around a Sun-like Star”, *Astronomical Journal*, **156**, 216, arXiv:1805.05925
- Bento, J., Hartman, J. D., Bakos, G. Á., **Bhatti, W.**, Csubry, Z., Penev, K., Bayliss, D., de Val-Borro, M., Zhou, G., Brahm, R., Espinoza, N., Rabus, M., Jordán, A., Suc, V., Ciceri, S., Sarkis, P., Henning, T., Mancini, L., Tinney, C. G., Wright, D. J., Durkan, S., Tan, T. G., Lázár, J.,

- Papp, I., & Sári, P. 2018, “HATS-39b, HATS-40b, HATS-41b, and HATS-42b: three inflated hot Jupiters and a super-Jupiter transiting F stars”, *Monthly Notices of the Royal Astronomical Society*, **477**, 3406, arXiv:1804.01623
- Bayliss, D., Hartman, J. D., Zhou, G., Bakos, G. Á., Vanderburg, A., Bento, J., Mancini, L., Ciceri, S., Brahm, R., Jordán, A., Espinoza, N., Rabus, M., Tan, T. G., Penev, K., **Bhatti, W.**, de Val-Borro, M., Suc, V., Csubry, Z., Henning, T., Sarkis, P., Lázár, J., Papp, I., & Sári, P. 2018, “HATS-36b and 24 Other Transiting/Eclipsing Systems from the HATSouth-K2 Campaign 7 Program”, *Astronomical Journal*, **155**, 119,
  - Hartman, J. D., Quinn, S. N., Bakos, G. Á., Torres, G., Kovács, G., Latham, D. W., Noyes, R. W., Shporer, A., Fulton, B. J., Esquerdo, G. A., Everett, M. E., Penev, K., **Bhatti, W.**, & Csubry, Z. 2018, “HAT-TR-318-007: A Double-lined M Dwarf Binary with Total Secondary Eclipses Discovered by HATNet and Observed by K2”, *Astronomical Journal*, **155**, 114, arXiv:1801.03570
  - Brahm, R., Hartman, J. D., Jordán, A., Bakos, G. Á., Espinoza, N., Rabus, M., **Bhatti, W.**, Penev, K., Sarkis, P., Suc, V., Csubry, Z., Bayliss, D., Bento, J., Zhou, G., Mancini, L., Henning, T., Ciceri, S., de Val-Borro, M., Shectman, S., Crane, J. D., Arriagada, P., Butler, P., Teske, J., Thompson, I., Osip, D., Díaz, M., Schmidt, B., Lázár, J., Papp, I., & Sári, P. 2018, “HATS-43b, HATS-44b, HATS-45b, and HATS-46b: Four Short-period Transiting Giant Planets in the Neptune-Jupiter Mass Range”, *Astronomical Journal*, **155**, 112, arXiv:1707.07093
  - Henning, T., Mancini, L., Sarkis, P., Bakos, G. Á., Hartman, J. D., Bayliss, D., Bento, J., **Bhatti, W.**, Brahm, R., Ciceri, S., Csubry, Z., de Val-Borro, M., Espinoza, N., Fulton, B. J., Howard, A. W., Isaacson, H. T., Jordán, A., Marcy, G. W., Penev, K., Rabus, M., Suc, V., Tan, T. G., Tinney, C. G., Wright, D. J., Zhou, G., Durkan, S., Lazar, J., Papp, I., & Sari, P. 2018, “HATS-50b through HATS-53b: Four Transiting Hot Jupiters Orbiting G-type Stars Discovered by the HATSouth Survey”, *Astronomical Journal*, **155**, 79, arXiv:1712.04324
  - Bento, J., Schmidt, B., Hartman, J. D., Bakos, G. Á., Ciceri, S., Brahm, R., Bayliss, D., Espinoza, N., Zhou, G., Rabus, M., **Bhatti, W.**, Penev, K., Csubry, Z., Jordán, A., Mancini, L., Henning, T., de Val-Borro, M., Tinney, C. G., Wright, D. J., Durkan, S., Suc, V., Noyes, R., Lázár, J., Papp, I., & Sári, P. 2017, “HATS-22b, HATS-23b and HATS-24b: three new transiting super-Jupiters from the HATSouth project”, *Monthly Notices of the Royal Astronomical Society*, **468**, 835, arXiv:1607.00688
  - Zhou, G., Bakos, G. Á., Hartman, J. D., Latham, D. W., Torres, G., **Bhatti, W.**, Penev, K., Buchhave, L., Kovács, G., Bieryla, A., Quinn, S., Isaacson, H., Fulton, B. J., Falco, E., Csubry, Z., Everett, M., Szklenar, T., Esquerdo, G., Berlind, P., Calkins, M. L., Béky, B., Knox, R. P., Hinz, P., Horch, E. P., Hirsch, L., Howell, S. B., Noyes, R. W., Marcy, G., de Val-Borro, M., Lázár, J., Papp, I., & Sári, P. 2017, “HAT-P-67b: An Extremely Low Density Saturn Transiting an F-subgiant Confirmed via Doppler Tomography”, *Astronomical Journal*, **153**, 211, arXiv:1702.00106
  - Soares-Furtado, M., Hartman, J. D., Bakos, G. Á., Huang, C. X., Penev, K., & **Bhatti, W.** 2017, “Image Subtraction Reduction of Open Clusters M35 & NGC 2158 in the K2 Campaign 0 Super Stamps”, *Publications of the Astronomical Society of the Pacific*, **129**, 044501, arXiv:1703.00030
  - Kipping, D. M., Cameron, C., Hartman, J. D., Davenport, J. R. A., Matthews, J. M., Sasselov, D., Rowe, J., Siverd, R. J., Chen, J., Sandford, E., Bakos, G. Á., Jordán, A., Bayliss, D., Henning, T., Mancini, L., Penev, K., Csubry, Z., **Bhatti, W.**, Da Silva Bento, J., Guenther, D. B., Kuschnig, R., Moffat, A. F. J., Rucinski, S. M., & Weiss, W. W. 2017, “No Conclusive Evidence for Transits of Proxima b in MOST Photometry”, *Astronomical Journal*, **153**, 93, arXiv:1609.08718

- Hartman, J. D., Bakos, G. Á., **Bhatti, W.**, Penev, K., Bieryla, A., Latham, D. W., Kovács, G., Torres, G., Csubry, Z., de Val-Borro, M., Buchhave, L., Kovács, T., Quinn, S., Howard, A. W., Isaacson, H., Fulton, B. J., Everett, M. E., Esquerdo, G., Béky, B., Szklenar, T., Falco, E., Sarterne, A., Boisse, I., Hébrard, G., Burrows, A., Lázár, J., Papp, I., & Sári, P. 2016, “HAT-P-65b and HAT-P-66b: Two Transiting Inflated Hot Jupiters and Observational Evidence for the Re-inflation of Close-in Giant Planets”, *Astronomical Journal*, **152**, 182, arXiv:1609.02767
- de Val-Borro, M., Bakos, G. Á., Brahm, R., Hartman, J. D., Espinoza, N., Penev, K., Ciceri, S., Jordán, A., **Bhatti, W.**, Csubry, Z., Bayliss, D., Bento, J., Zhou, G., Rabus, M., Mancini, L., Henning, T., Schmidt, B., Tan, T. G., Tinney, C. G., Wright, D. J., Kedziora-Chudczer, L., Bailey, J., Suc, V., Durkan, S., Lázár, J., Papp, I., & Sári, P. 2016, “HATS-31b through HATS-35b: Five Transiting Hot Jupiters Discovered By the HATSouth Survey”, *Astronomical Journal*, **152**, 161, arXiv:1607.00006
- Penev, K., Hartman, J. D., Bakos, G. Á., Ciceri, S., Brahm, R., Bayliss, D., Bento, J., Jordán, A., Csubry, Z., **Bhatti, W.**, de Val-Borro, M., Espinoza, N., Zhou, G., Mancini, L., Rabus, M., Suc, V., Henning, T., Schmidt, B., Noyes, R. W., Lázár, J., Papp, I., & Sári, P. 2016, “HATS-18b: An Extreme Short-period Massive Transiting Planet Spinning Up Its Star”, *Astronomical Journal*, **152**, 127, arXiv:1606.00848
- Espinoza, N., Bayliss, D., Hartman, J. D., Bakos, G. Á., Jordán, A., Zhou, G., Mancini, L., Brahm, R., Ciceri, S., **Bhatti, W.**, Csubry, Z., Rabus, M., Penev, K., Bento, J., de Val-Borro, M., Henning, T., Schmidt, B., Suc, V., Wright, D. J., Tinney, C. G., Tan, T. G., & Noyes, R. 2016, “HATS-25b through HATS-30b: A Half-dozen New Inflated Transiting Hot Jupiters from the HATSouth Survey”, *Astronomical Journal*, **152**, 108, arXiv:1606.00023
- Rabus, M., Jordán, A., Hartman, J. D., Bakos, G. Á., Espinoza, N., Brahm, R., Penev, K., Ciceri, S., Zhou, G., Bayliss, D., Mancini, L., **Bhatti, W.**, de Val-Borro, M., Csubry, Z., Sato, B., Tan, T.-G., Henning, T., Schmidt, B., Bento, J., Suc, V., Noyes, R., Lázár, J., Papp, I., & Sári, P. 2016, “HATS-11b AND HATS-12b: Two Transiting Hot Jupiters Orbiting Subsolar Metallicity Stars Selected for the K2 Campaign 7”, *Astronomical Journal*, **152**, 88, arXiv:1603.02894
- Ciceri, S., Mancini, L., Henning, T., Bakos, G., Penev, K., Brahm, R., Zhou, G., Hartman, J. D., Bayliss, D., Jordán, A., Csubry, Z., de Val-Borro, M., **Bhatti, W.**, Rabus, M., Espinoza, N., Suc, V., Schmidt, B., Noyes, R., Howard, A. W., Fulton, B. J., Isaacson, H., Marcy, G. W., Butler, R. P., Arriagada, P., Crane, J. D., Shectman, S., Thompson, I., Tan, T. G., Lázár, J., Papp, I., & Sári, P. 2016, “HATS-15b and HATS-16b: Two Massive Planets Transiting Old G Dwarf Stars”, *Publications of the Astronomical Society of the Pacific*, **128**, 074401, arXiv:1511.06305
- Brahm, R., Jordán, A., Bakos, G. Á., Penev, K., Espinoza, N., Rabus, M., Hartman, J. D., Bayliss, D., Ciceri, S., Zhou, G., Mancini, L., Tan, T. G., de Val-Borro, M., **Bhatti, W.**, Csubry, Z., Bento, J., Henning, T., Schmidt, B., Rojas, F., Suc, V., Lázár, J., Papp, I., & Sári, P. 2016, “HATS-17b: A Transiting Compact Warm Jupiter in a 16.3 Day Circular Orbit”, *Astronomical Journal*, **151**, 89, arXiv:1510.05758
- Zhang, M., Bakos, G. Á., Penev, K., Csubry, Z., Hartman, J. D., **Bhatti, W.**, & de Val-Borro, M. 2016, “Precision Multiband Photometry with a DSLR Camera”, *Publications of the Astronomical Society of the Pacific*, **128**, 035001, arXiv:1506.03097
- Huang, C. X., Penev, K., Hartman, J. D., Bakos, G. Á., **Bhatti, W.**, Domsa, I., & de Val-Borro, M. 2015, “High-precision photometry for K2 Campaign 1”, *Monthly Notices of the Royal Astronomical Society*, **454**, 4159, arXiv:1507.07578

- Hartman, J. D., Bakos, G. Á., Buchhave, L. A., Torres, G., Latham, D. W., Kovács, G., **Bhatti, W.**, Csubry, Z., de Val-Borro, M., Penev, K., Huang, C. X., Béky, B., Bieryla, A., Quinn, S. N., Howard, A. W., Marcy, G. W., Johnson, J. A., Isaacson, H., Fischer, D. A., Noyes, R. W., Falco, E., Esquerdo, G. A., Knox, R. P., Hinz, P., Lázár, J., Papp, I., & Sári, P. 2015, “HAT-P-57b: A Short-period Giant Planet Transiting a Bright Rapidly Rotating A8V Star Confirmed Via Doppler Tomography”, *Astronomical Journal*, **150**, 197, arXiv:1510.08839
- Hartman, J. D., **Bhatti, W.**, Bakos, G. Á., Bieryla, A., Kovács, G., Latham, D. W., Csubry, Z., de Val-Borro, M., Penev, K., Buchhave, L. A., Torres, G., Howard, A. W., Marcy, G. W., Johnson, J. A., Isaacson, H., Sato, B., Boisse, I., Falco, E., Everett, M. E., Szklenar, T., Fulton, B. J., Shporer, A., Kovács, T., Hansen, T., Béky, B., Noyes, R. W., Lázár, J., Papp, I., & Sári, P. 2015, “HAT-P-50b, HAT-P-51b, HAT-P-52b, and HAT-P-53b: Three Transiting Hot Jupiters and a Transiting Hot Saturn From the HATNet Survey”, *Astronomical Journal*, **150**, 168, arXiv:1503.04149
- Bakos, G. Á., Penev, K., Bayliss, D., Hartman, J. D., Zhou, G., Brahm, R., Mancini, L., de Val-Borro, M., **Bhatti, W.**, Jordán, A., Rabus, M., Espinoza, N., Csubry, Z., Howard, A. W., Fulton, B. J., Buchhave, L. A., Ciceri, S., Henning, T., Schmidt, B., Isaacson, H., Noyes, R. W., Marcy, G. W., Suc, V., Howe, A. R., Burrows, A. S., Lázár, J., Papp, I., & Sári, P. 2015, “HATS-7b: A Hot Super Neptune Transiting a Quiet K Dwarf Star”, *Astrophysical Journal*, **813**, 111, arXiv:1507.01024
- Juncher, D., Buchhave, L. A., Hartman, J. D., Bakos, G. Á., Bieryla, A., Kovács, T., Boisse, I., Latham, D. W., Kovács, G., **Bhatti, W.**, Csubry, Z., Penev, K., de Val-Borro, M., Falco, E., Torres, G., Noyes, R. W., Lázár, J., Papp, I., & Sári, P. 2015, “HAT-P-55b: A Hot Jupiter Transiting a Sun-Like Star”, *Publications of the Astronomical Society of the Pacific*, **127**, 851, arXiv:1506.03734
- Huang, C. X., Hartman, J. D., Bakos, G. Á., Penev, K., **Bhatti, W.**, Bieryla, A., de Val-Borro, M., Latham, D. W., Buchhave, L. A., Csubry, Z., Kovács, G., Béky, B., Falco, E., Berlind, P., Calkins, M. L., Esquerdo, G. A., Lázár, J., Papp, I., & Sári, P. 2015, “HAT-P-56b: An Inflated Massive Hot Jupiter Transiting a Bright F Star Followed Up with K2 Campaign 0 Observations”, *Astronomical Journal*, **150**, 85, arXiv:1506.01776
- Zhou, G., Bayliss, D., Hartman, J. D., Rabus, M., Bakos, G. Á., Jordán, A., Brahm, R., Penev, K., Csubry, Z., Mancini, L., Espinoza, N., de Val-Borro, M., **Bhatti, W.**, Ciceri, S., Henning, T., Schmidt, B., Murphy, S. J., Butler, R. P., Arriagada, P., Shectman, S., Crane, J., Thompson, I., Suc, V., & Noyes, R. W. 2015, “A  $0.24+0.18 M_{\odot}$  double-lined eclipsing binary from the HAT-South survey”, *Monthly Notices of the Royal Astronomical Society*, **451**, 2263, arXiv:1505.02860
- Bayliss, D., Hartman, J. D., Bakos, G. Á., Penev, K., Zhou, G., Brahm, R., Rabus, M., Jordán, A., Mancini, L., de Val-Borro, M., **Bhatti, W.**, Espinoza, N., Csubry, Z., Howard, A. W., Fulton, B. J., Buchhave, L. A., Henning, T., Schmidt, B., Ciceri, S., Noyes, R. W., Isaacson, H., Marcy, G. W., Suc, V., Lázár, J., Papp, I., & Sári, P. 2015, “HATS-8b: A Low-density Transiting Super-Neptune”, *Astronomical Journal*, **150**, 49, arXiv:1506.01334
- Mancini, L., Hartman, J. D., Penev, K., Bakos, G. Á., Brahm, R., Ciceri, S., Henning, T., Csubry, Z., Bayliss, D., Zhou, G., Rabus, M., de Val-Borro, M., Espinoza, N., Jordán, A., Suc, V., **Bhatti, W.**, Schmidt, B., Sato, B., Tan, T. G., Wright, D. J., Tinney, C. G., Addison, B. C., Noyes, R. W., Lázár, J., Papp, I., & Sári, P. 2015, “HATS-13b and HATS-14b: two transiting hot Jupiters from the HATSouth survey”, *Astronomy and Astrophysics*, **580**, A63, arXiv:1503.03469
- Brahm, R., Jordán, A., Hartman, J. D., Bakos, G. Á., Bayliss, D., Penev, K., Zhou, G., Ciceri, S., Rabus, M., Espinoza, N., Mancini, L., de Val-Borro, M., **Bhatti, W.**, Sato, B., Tan, T. G., Csubry, Z., Buchhave, L., Henning, T., Schmidt, B., Suc, V., Noyes, R. W., Papp, I., Lázár, J., & Sári,

- P. 2015, “HATS9-b and HATS10-b: Two Compact Hot Jupiters in Field 7 of the K2 Mission”, *Astronomical Journal*, **150**, 33, arXiv:1503.00062
- Hartman, J. D., Bayliss, D., Brahm, R., Bakos, G. Á., Mancini, L., Jordán, A., Penev, K., Rabus, M., Zhou, G., Butler, R. P., Espinoza, N., de Val-Borro, M., **Bhatti, W.**, Csubry, Z., Ciceri, S., Henning, T., Schmidt, B., Arriagada, P., Shectman, S., Crane, J., Thompson, I., Suc, V., Csák, B., Tan, T. G., Noyes, R. W., Lázár, J., Papp, I., & Sári, P. 2015, “HATS-6b: A Warm Saturn Transiting an Early M Dwarf Star, and a Set of Empirical Relations for Characterizing K and M Dwarf Planet Hosts”, *Astronomical Journal*, **149**, 166, arXiv:1408.1758
  - Bakos, G. Á., Hartman, J. D., **Bhatti, W.**, Bieryla, A., de Val-Borro, M., Latham, D. W., Buchhave, L. A., Csubry, Z., Penev, K., Kovács, G., Béky, B., Falco, E., Kovács, T., Howard, A. W., Johnson, J. A., Isaacson, H., Marcy, G. W., Torres, G., Noyes, R. W., Berlind, P., Calkins, M. L., Esquerdo, G. A., Lázár, J., Papp, I., & Sári, P. 2015, “HAT-P-54b: A Hot Jupiter Transiting a 0.6  $M_{\odot}$  Star in Field 0 of the K2 Mission”, *Astronomical Journal*, **149**, 149, arXiv:1404.4417
  - Kovács, G., Hartman, J. D., Bakos, G. Á., Quinn, S. N., Penev, K., Latham, D. W., **Bhatti, W.**, Csubry, Z., & de Val-Borro, M. 2014, “Stellar rotational periods in the planet hosting open cluster Praesepe”, *Monthly Notices of the Royal Astronomical Society*, **442**, 2081, arXiv:1405.3728
  - Jordán, A., Brahm, R., Bakos, G. Á., Bayliss, D., Penev, K., Hartman, J. D., Zhou, G., Mancini, L., Mohler-Fischer, M., Ciceri, S., Sato, B., Csubry, Z., Rabus, M., Suc, V., Espinoza, N., **Bhatti, W.**, de Val-Borro, M., Buchhave, L., Csák, B., Henning, T., Schmidt, B., Tan, T. G., Noyes, R. W., Béky, B., Butler, R. P., Shectman, S., Crane, J., Thompson, I., Williams, A., Martin, R., Contreras, C., Lázár, J., Papp, I., & Sári, P. 2014, “HATS-4b: A Dense Hot Jupiter Transiting a Super Metal-rich G star”, *Astronomical Journal*, **148**, 29, arXiv:1402.6546
  - Hartman, J. D., Bakos, G. Á., Torres, G., Kovács, G., Johnson, J. A., Howard, A. W., Marcy, G. W., Latham, D. W., Bieryla, A., Buchhave, L. A., **Bhatti, W.**, Béky, B., Csubry, Z., Penev, K., de Val-Borro, M., Noyes, R. W., Fischer, D. A., Esquerdo, G. A., Everett, M., Szklenár, T., Zhou, G., Bayliss, D., Shporer, A., Fulton, B. J., Sanchis-Ojeda, R., Falco, E., Lázár, J., Papp, I., & Sári, P. 2014, “HAT-P-44b, HAT-P-45b, and HAT-P-46b: Three Transiting Hot Jupiters in Possible Multi-planet Systems”, *Astronomical Journal*, **147**, 128, arXiv:1308.2937
  - Bieryla, A., Hartman, J. D., Bakos, G. Á., **Bhatti, W.**, Kovács, G., Boisse, I., Latham, D. W., Buchhave, L. A., Csubry, Z., Penev, K., de Val-Borro, M., Béky, B., Falco, E., Torres, G., Noyes, R. W., Berlind, P., Calkins, M. C., Esquerdo, G. A., Lázár, J., Papp, I., & Sári, P. 2014, “HAT-P-49b: A 1.7  $M_J$  Planet Transiting a Bright 1.5  $M_{\odot}$  F-star”, *Astronomical Journal*, **147**, 84, arXiv:1401.5460
  - Lemze, D., Postman, M., Genel, S., Ford, H. C., Balestra, I., Donahue, M., Kelson, D., Nonino, M., Mercurio, A., Biviano, A., Rosati, P., Umetsu, K., Sand, D., Koekemoer, A., Meneghetti, M., Melchior, P., Newman, A. B., **Bhatti, W. A.**, Voit, G. M., Medezinski, E., Zitrin, A., Zheng, W., Broadhurst, T., Bartelmann, M., Benitez, N., Bouwens, R., Bradley, L., Coe, D., Graves, G., Grillo, C., Infante, L., Jimenez-Teja, Y., Jouvel, S., Lahav, O., Maoz, D., Merten, J., Molino, A., Moustakas, J., Moustakas, L., Ogaz, S., Scodreggio, M., & Seitz, S. 2013, “The Contribution of Halos with Different Mass Ratios to the Overall Growth of Cluster-sized Halos”, *Astrophysical Journal*, **776**, 91, arXiv:1308.1675
  - Rest, A., Foley, R. J., Sinnott, B., Welch, D. L., Badenes, C., Filippenko, A. V., Bergmann, M., **Bhatti, W. A.**, Blondin, S., Challis, P., Damke, G., Finley, H., Huber, M. E., Kasen, D., Kirshner, R. P., Matheson, T., Mazzali, P., Minniti, D., Nakajima, R., Narayan, G., Olsen, K., Sauer, D., Smith, R. C., & Suntzeff, N. B. 2011, “Direct Confirmation of the Asymmetry of the Cas A



Supernova with Light Echoes”, *Astrophysical Journal*, **732**, 3, arXiv:1003.5660

- **Bhatti, W. A.**, Richmond, M. W., Ford, H. C., & Petro, L. D. 2010, “Variable Point Sources in Sloan Digital Sky Survey Stripe 82. I. Project Description and Initial Catalog ( $0 \text{ hr} \leq \alpha \leq 4 \text{ hr}$ )”, *Astrophysical Journal Supplement Series*, **186**, 233, arXiv:0912.0976