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# Laura Blecha

## Curriculum Vitae

Dept of Physics, University of Florida  
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## Employment

<b>Assistant Professor</b> Physics Dept., University of Florida	2017 - Present
<b>Joint Space-Science Institute (JSI) Prize Postdoc</b> Astronomy Dept., University of Maryland	2012 - 2017
<b>Einstein Postdoctoral Fellow</b> Astronomy Dept., University of Maryland	2012 - 2015
<b>ITC Postdoctoral Fellow</b> Harvard-Smithsonian Center for Astrophysics	2012

## Education

### Harvard University

<b>Ph.D.</b> in Astronomy & Astrophysics Advisor: Abraham Loeb Thesis: <i>The Dynamics and Growth of Supermassive Black Holes in Merging Galaxies</i>	2012
<b>A.M.</b> in Astronomy	2008

### Cambridge University

<b>M.Phil.</b> in Astronomy Advisors: Martin Rees, Martin Haehnelt	2006
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### Northwestern University

<b>B.S.</b> in Physics and Integrated Science, with honors	2005
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## Summary of Research Interests

My research focuses on theoretical studies of supermassive black hole evolution across cosmic time, including their formation, fueling, feedback, and dynamics. I specialize in galactic- to cosmological-scale hydrodynamics simulations with an emphasis on multi-messenger signatures. My interests fall into two broad categories: the co-evolution of black holes and their host galaxies, and the dynamics and observable signatures of supermassive black hole binaries, mergers, and recoils. Much of my ongoing work involves making predictions for gravitational-wave source populations that may soon be detectable with pulsar timing arrays and LISA.

## Honors and Awards

• Cottrell Scholar Award, Research Corporation for Science Advancement	2021 - 2024
• Postdoctoral Scientist Prize for Excellence, UMD Dept. of Astronomy	2015
• Einstein Postdoctoral Fellowship, NASA	2012 - 2015
• Joint Space Science Institute Prize Postdoc, UMD	2012 - 2017

- Eric R. Keto Prize for Best PhD Thesis in Theoretical Astrophysics, Harvard 2012
- Gates Cambridge Scholarship 2005 - 2006
- National Science Foundation Graduate Research Fellowship, Hon. Mention 2005
- Outstanding Junior in Physics and Astronomy Award, Northwestern 2004
- Robert C. Byrd Honors Scholarship 2001 - 2005
- National Merit Scholarship 2001
- Kansas Governor's Scholar 2001
- Kansas Honor Scholar 2001

## Successful Proposals

### Research Grants

- **[PI] Cottrell Scholar Award, Research Corporation for Science Advancement (2021-2024; \$100,000):** "The Making of a Gravitational Wave Source: Probing the Role of Galaxy Assembly in Black Hole Binary and Triple Formation"
- **[Co-PI] NSF Directorate for Mathematical and Physical Sciences Invited Proposal (2021-2022; \$32,527):** "Broadening Participation: 2021 MPS Workshop for New Investigators"; PI: Yoonseok Lee
- **[Co-I/Institutional PI] NASA LISA Preparatory Science: (2021-2024, \$118,270):** "Preparing LISA for Intermediate Mass Black Hole Science"; PI: Giacomo Fragione
- **[Co-I/Institutional PI] NASA Astrophysics Data Analysis Program (2021-2024; \$58,699):** The CANDELS AGN and Merger Catalog: Star Formation and AGN Triggering in Mergers. PI: Julia Comerford
- **[PI] NASA Astrophysics Theory Program (2020-2023; \$576,146):** "Probing the AGN/Galaxy Connection with a Novel, Explicit Feedback Implementation"
- **[PI] NSF Astronomy & Astrophysics Grant (2019-2022; \$660,319):** "Collaborative Research: The impacts of massive BH formation and evolution pathways on GW sources"
- **[Co-PI] UF Informatics Institute Junior Seed Fund Program (2019-2020; \$44,898):** "Constraining the Cosmic Expansion Rate with LIGO"; PI: Paul Torrey
- **[Co-I] NSF Directorate for Mathematical and Physical Sciences Invited Proposal (2019-2021; \$163,194):** "Broadening Participation: 2019 MPS Workshop for New Investigators"; PI: Yoonseok Lee
- **[PI] NSF Astronomy & Astrophysics Grant (2017-2020; \$285,550):** "Modeling (Dual) Active Galactic Nuclei in Mergers: Unique Probes of Black Hole Inspiral and Growth"
- **[Co-I] HST (Cycle 21 AR):** "A Dedicated Search for Gravitational Wave Recoiling Supermassive Black Holes in COSMOS", PI: Francesca Civano

### Telescope Time

- **[Co-I] JWST (Cycle 1):** "A Comprehensive JWST View of the Most Distant Quasars Deep Into the Epoch of Reionization", PI: Xiaohui Fan

- [Co-I] JWST (Cycle 1): “Unveiling the Nature of CID- 42. The Best Candidate for a Gravitational Wave Recoiling Supermassive Black Hole”, PI: Francisco Mueller-Sanchez
- [Co-I] JWST (Cycle 1): “Mapping A Distant Protocluster Anchored by A Luminous Quasar in the Epoch of Reionization”, PI: Feige Wang
- [Co-I] JWST (Cycle 1): “Nebular line diagnostics in a merger at cosmic dawn”, PI: Roberto Decarli
- [Co-I] JWST (Cycle 1): “Uncovering Intermediate Mass Black Holes with JWST: Pushing the Frontier”, PI: Shobita Satyapal
- [Co-I] JWST (Cycle 1): “A SPectroscopic survey of biased halos In the Reionization Era (ASPIRE): A JWST Quasar Legacy Survey”, PI: Feige Wang
- [Co-I] ALMA (Cycle 6): “A Search for Infrared Cores in Compton Thick AGN” PI: George Privon.
- [Co-I] NuSTAR (Cycle 4): “WISE Discovery of the Largest Sample of Obscured Dual AGNs: A NuSTAR Follow-up”; PI: Shobita Satyapal.
- [Co-I] VLA (2019A): “Gas Kinematics Around the Was49 System”, PI: Nathan Secrest.
- [Co-I] VLBA (2018B): “Extreme AGN Feedback in Minor Mergers: The VLBA View of Was 49b”; PI: Nathan Secrest.
- **[PI] Discovery Channel Telescope (DCT) (2017Q2)**: “Was 49: The DCT Spectroscopic View”, Observing Co-I: Nathan Secrest
- **[PI] DCT (2016Q2)**: “Was 49: The DCT View”, Observing Co-I: Nathan Secrest
- [Co-I] HST (Cycle 25): “The HST View of Was 49b: An Overmassive AGN in a Merging Dwarf Galaxy?”, PI: Nathan Secrest
- **[Co-PI] DCT (2014Q3)**: “AGN in Candidate Dwarf Galaxy Hosts”, Co-PI: Richard Mushotzky,
- [Co-I] ALMA (Cycle 5): “A Search for Infrared Cores in Compton Thick AGN”, PI: George Privon
- [Co-I] ALMA (Cycle 5): “2MASS J00423991+3017515: An AGN On The Run?”, PI: J. Drew Hogg
- [Co-I] Joint XMM (AO-17) & NuSTAR: “Unveiling a Population of Buried Dual AGNs: An XMM+NuSTAR Follow-up”, PI: Shobita Satyapal
- [Co-I] XMM (AO-17): “Characterizing the Intrinsic Absorption Along the Merger Sequence with XMM-Newton”, PI: Shobita Satyapal
- [Co-I] XMM (AO-16): “Studying Merger Driven Obscuration in Dual AGN”, PI: Michael Koss
- [Co-I] Joint Chandra (Cycle 18) & NuSTAR: “WISE Discovery of the Largest Sample of Obscured Dual AGNs: A Chandra and NuSTAR Follow-up”, PI: Shobita Satyapal
- [Co-I] Joint HST (Cycle 24) & Chandra: “2MASS J00423991+3017515: An AGN On The Run?”, PI: Drew Hogg
- [Co-I] VLA (2016B): “Clarifying the Nature of Was 49: A Quasar in a Minor Merger?”, PI: Nathan Secrest

- [Co-I] Chandra (Cycle 17): “Studying Dual AGN Activity and Obscuration in the Final Merger Stage ( $< 3$  kpc)”, PI: Michael Koss
- [Co-I] XMM (AO-15): “WISE Discovery of the Largest Sample of Obscured Dual AGNs: An XMM-Newton Follow-up”, PI: Shobita Satyapal
- **[Co-PI] HST (Cycle 22)**: “A Candidate Recoiling Black Hole in a Nearby Dwarf Galaxy”, Co-PI: Michael Koss
- [Co-I] XMM (AO-14): “A Candidate Recoiling Black Hole in a Nearby Dwarf Galaxy”, PI: Michael Koss
- [Co-I] Chandra (Cycle 16): “Uncovering AGN Fueling and Feedback in Dwarf Galaxies”, PI: Richard Mushotzky

### Competitively-Awarded Computing Allocations

- **[Co-PI] NSF XSEDE (2018; 1.24M CPU hrs)**: “An Imaging and Kinematic Approach for Improved Galaxy Merger Identifications”, Co-PI: Rebecca Nevin
- **[PI] NSF XSEDE (2017; 0.42M CPU hours)**: “Modeling (Dual) Active Galactic Nuclei in Mergers: Unique Probes of Black Hole Inspiral and Growth”
- **[PI] NSF XSEDE (2015-2016; 1.0M CPU hours)**: “Modeling the Kinematic and Radiative Signatures of Active Black Holes”
- **[PI] NSF XSEDE (2014; 2.0M CPU-hours)**: “Modeling the Signatures of Supermassive Black Holes in Galaxy Mergers”

## Publications

### Refereed Publications

- Hogg, J. D., **Blecha, L.**, Reynolds, C. S., Smith, K. L., & Winter, L. M. 2021, “2MASX J00423991 + 3017515: an offset active galactic nucleus in an interacting system”, MNRAS, 503, 1688
- Cann, J. M., Satyapal, S., Rothberg, B., Canalizo, G., Bohn, T., LaMassa, S., Matzko, W., **Blecha, L.**, Secrest, N. J., Seth, A., Böker, T., Sexton, R. O., Kamal, L., & Schmitt, H., 2021, “Relics of Supermassive Black Hole Seeds: The Discovery of an Accreting Black Hole in an Optically Normal, Low Metallicity Dwarf Galaxy”, ApJL, 912, L2
- Nevin, R.; **Blecha, L.**; Comerford, J.; Greene, J. E.; Law, D. R.; Stark, D. V.; Westfall, K. B.; Vázquez-Mata, J. A.; Smethurst, R.; Argudo-Fernández, M.; Brownstein, J. R.; Drory, N. 2021, “Accurate Identification of Galaxy Mergers with Stellar Kinematics”, ApJ, 912, 45
- Sayeb, M., **Blecha, L.**, Kelley, Luke Z., Gerosa, D., Kesden, M., & Thomas, J. 2021, “Massive black hole binary inspiral and spin evolution in a cosmological framework”, MNRAS, 501, 2531
- Secrest, N., Ellison, Sara L., Satyapal, S., **Blecha, L.** 2020: “The X-ray View of Merger-Induced AGN Activity at Low Redshift”, MNRAS, 499, 2380
- Bhowmick, **Blecha**, & Thomas 2020, “Supermassive black hole fueling in IllustrisTNG: Impact of environment”, ApJ, 904, 150

- Liu, T., Koss, M., **Blecha, L.**, Ricci, C., Trakhtenbrot, B., Mushotzky, R., Harrison, F., Ichikawa, K., Kakkad, D., Oh, K., Powell, M., Privon, G. C., Schawinski, K.; Shimizu, T. Taro; Smith, Krista Lynne; Stern, Daniel; Treister, Ezequiel; Urry, C. Megan 2019, “The BAT AGN Spectroscopic Survey – XVIII. Searching for Supermassive Black Hole Binaries in the X-rays”, *ApJ*, 896, 122
- Cann, J. M., Satyapal, S., Bohn, T., Sexton, R., Pfeifle, R., Manzano-King, C., Canalizo, G., Rothberg, B., Gliozzi, M., Secrest, N. J., & **Blecha, L.** 2020: “Multi-wavelength Observations of J105621+313823, a Broad-Line, Low-Metallicity AGN”, *ApJ*, 895, 147
- Privon, G. C., Ricci, C., Aalto, S., Viti, S., Armus, L., Díaz-Santos, T., González-Alfonso, E., Iwasawa, K., Jeff, D. L., Treister, E., Bauer, F., Evans, A. S., Garg, P., Herrero-Illana, R., Mazzarella, J. M., Larson, K., **Blecha, L.**, Barcos-Muñoz, L., Charmandaris, V., Stierwalt, S., & Pérez-Torres, M. A. 2020: “A Hard X-ray Test of HCN Enhancements as a Tracer of Embedded Black Hole Growth”, *ApJ*, 893, 149
- Katz, M. L., Kelley, L. Z., Dosopoulou, F., Berry, S., **Blecha, L.**, & Larson, S. L. 2020: “Probing massive black hole binary populations with LISA”, *MNRAS*, 491, 2301-2317
- Pfeifle, R. W., Satyapal, S., Manzano-King, C., Cann, J. M., Sexton, R., Rothberg, B., Canalizo, G., Ricci, C., **Blecha, L.**, Ellison, S. L., Gliozzi, M., Secrest, N. J., Constantin, A. 2019: “A Triple AGN in a Mid-Infrared Selected Late Stage Galaxy Merger”, *ApJ*, 883, 167
- Pfeifle, R., W., Satyapal, S., Secrest, N. J., Gliozzi, M., Ricci, C., Ellison, S. L., Rothberg, B., Cann, J., **Blecha, L.**, Williams, J. K., & Constantin, S. 2019, “Buried Black Hole Growth in IR-Selected Mergers: New Results from Chandra”, *ApJ*, 875, 117
- Nevin, R., **Blecha, L.**, Comerford, J., & Greene, J. 2019: “Accurate Identification of Galaxy Mergers with Imaging”, *ApJ*, 872, 76
- Cann, J. M., Satyapal, S., Abel, N. P., **Blecha, L.**, Mushotzky, R. F., Reynolds, C. S., and Secrest, N. J. 2019: “The Limitations of Optical Spectroscopic Diagnostics in Identifying Active Galactic Nuclei in the Low-mass Regime”, *ApJL*, 870, L2
- Koss, M., **Blecha, L.**, Bernhard, P., Hung, C.-L., Lu, J., Schawinski, K., Treister, E., Mushotzky, R., Veilleux, S., Gehrels, N., & Sanders, D. 2018: “A population of luminous accreting black holes with hidden mergers”, *Nature*, 563, 214
- **Blecha, L.**, Briske, W., Burke-Spolaor, S., Civano, F., Comerford, J., Darling, J., Lazio, T. J. W., and Maccarone, T. J. 2019: “Offset Active Galactic Nuclei”, in *Science with a Next-Generation Very Large Array*, ed. E. J. Murphy & the ngVLA Science Advisory Council (San Francisco, CA: Astronomical Society of the Pacific), 763, arxiv:1810.06609
- Burke-Spolaor, S., **Blecha, L.**, Bogdanovic, T., Comerford, J. M., Lazio, T. J. W., Liu, X., Maccarone, T. J., Pesce, D., Shen, Y., and Taylor, G. 2019: “The Next-Generation Very Large Array: Supermassive Black Hole Pairs and Binaries”, in *Science with a Next-Generation Very Large Array*, ed. E. J. Murphy & the ngVLA Science Advisory Council (San Francisco, CA: Astronomical Society of the Pacific), 677, arxiv:1808.04368
- **Blecha, L.**, Snyder, G. F., Satyapal, S., & Ellison, S. L. 2018: “The power of infrared AGN selection in mergers: a theoretical study”, *MNRAS*, 478, 3056

- Cann, J., Satyapal, S., Abel, T., Ricci, C., Gliozzi, M., **Blecha, L.**, & Secret, N. J. 2018: “The Hunt for Intermediate Mass Black Holes in the JWST Era”, *ApJ*, 861, 142
- Kelley, L. Z., **Blecha, L.**, Hernquist, L., Sesana, A., Taylor, S. R. 2018: “Single Sources in the Low-Frequency Gravitational Wave Sky: properties and time to detection by pulsar timing arrays”, *ApJ*, 477, 964
- Kelley, L. Z., **Blecha, L.**, Hernquist, L., Sesana, A., Taylor, S. R. 2017: “The gravitational wave background from massive black hole binaries in Illustris: spectral features and time to detection with pulsar timing arrays”, *MNRAS*, 471, 4508
- Satyapal, S., Secret, N. J., Ricci, C., Ellison, S. L., Rothberg, B., **Blecha, L.**, Constantin, A., Gliozzi, M., McNulty, P., Ferguson, J. 2017: “Buried AGNs in Advanced Mergers: Mid-infrared Color Selection as a Dual AGN Candidate Finder”, *ApJ*, 848, 126
- Ricci, C., Bauer, F. E., Treister, E., Schawinski, K., Privon, G. C., **Blecha, L.**, Arevalo, P., Armus, L., Harrison, F., Ho, L. C., Iwasawa, K., Sanders, D. B., & Stern, D. 2017: “Growing supermassive black holes in the late stages of galaxy mergers are heavily obscured”, *MNRAS*, 468, 1273
- Secret, N., Schmitt, H., **Blecha, L.**, Rothberg, B., & Fischer, J. 2017: “Was 49b: An Overmassive AGN in a Merging Dwarf Galaxy?”, *ApJ*, 836, 183
- Kelley, L. Z., **Blecha, L.**, & Hernquist, L., 2017: “Massive Black Hole Binary Mergers in Dynamical Galactic Environments”, *MNRAS*, 464, 3131
- **Blecha, L.**, Sijacki, D., Kelley, L. Z., Torrey, P., Vogelsberger, M., Nelson, D., Springel, V., Snyder, G., Hernquist, L. 2016: “Recoiling black holes: prospects for detection and implications of spin alignment”, *MNRAS*, 456, 961-989
- Nelson, D., Pillepich, A., Genel, S., Vogelsberger, M., Springel, V., Torrey, P., Rodriguez-Gomez, V., Sijacki, D., Snyder, G., Griffen, B., Marinacci, F., **Blecha, L.**, Sales, L., Xu, D., Hernquist, L. 2015: “The Illustris Simulation: Public Data Release”, *Astronomy and Computing*, 13, 12-37
- Koss, M., **Blecha, L.**, Mushotzky, R., Hung, C. L., Veilleux, S., Trakhtenbrot, B., Schawinski, K., Stern, D., Smith, N., Li, Y., Man, A., Filippenko, A., Mauerhan, J., Stanek, K., Sanders, D. 2014: “SDSS1133: An Unusually Persistent Transient in a Nearby Dwarf Galaxy”, *MNRAS*, 445, 515 - 527
- Dierickx, M., **Blecha, L.**, & Loeb, A. 2014: “Signatures of the M31-M32 Galactic Collision”, *ApJL*, 788, L38
- **Blecha, L.**, Loeb, A., & Narayan, R. 2013: “Double-Peaked Narrow-Line Signatures of Dual Supermassive Black Holes in Galaxy Merger Simulations”, *MNRAS*, 429, 2594 - 2616
- **Blecha, L.**, Civano, F., Elvis, M., & Loeb, A. 2013: “Constraints on the Nature of CID-42: Recoil Kick or Supermassive Black Hole Pair?”, *MNRAS*, 428, 1341 - 1350
- Civano, F., Elvis, M., Lanzuisi, G., Aldcroft, T., Trichas, M., Bongiorno, A., Brusa, M., **Blecha, L.**, and 10 coauthors 2012: “Chandra High-resolution observations of CID-42, a Candidate Recoiling Supermassive Black Hole”, *ApJ*, 752, 49 - 56

- **Blecha, L.**, Cox, T. J., Loeb, A., & Hernquist, L. 2011: “Recoiling black holes in merging galaxies: relationship to active galactic nucleus lifetimes, starbursts and the  $M_{\text{BH}} - \sigma_*$  relation”, MNRAS, 412, 2154 - 2182
- Civano, F., Elvis, M., Lanzuisi, G., Jahnke, K., Zamorani, G., **Blecha, L.**, and 35 coauthors 2010: “A Runaway Black Hole in COSMOS: Gravitational Wave or Slingshot Recoil?”, ApJ, 717, 209 - 222
- **Blecha, L.** & Loeb, A. 2008: “Effects of gravitational-wave recoil on the dynamics and growth of supermassive black holes”, MNRAS, 390, 1311 - 1325
- **Blecha, L.**, Ivanova, N., Kalogera, V., Belczynski, K., Fregeau, J., & Rasio, F. 2006: “Close Binary Interactions of Intermediate-Mass Black Holes: Possible Ultraluminous X-Ray Sources?”, ApJ, 642, 427 - 437

### Submitted Publications

- Bhowmick, A., **Blecha, L.**, Torrey, P., Kelley, L. Z., Vogelsberger, M., Kosciw, K., Nelson, D., Weinberger, R., & Hernquist, L. 2021: “Supermassive black hole fueling in IllustrisTNG: Impact of environment”, submitted to MNRAS; arxiv:2105.08055

### Non-Refereed Publications

- **Blecha, L.**, Briske, W., Burke-Spolaor, S., Civano, F., Comerford, J., Darling, J., Lazio, T. J. W., & Maccarone, T. J., 2019: “Detecting Offset Active Galactic Nuclei”, Astro2020: Decadal Survey on Astronomy and Astrophysics, science white papers, no. 318
- Besla, G., Huppenkothen, D., Lloyd-Ronning, N., Schneider, E., Behroozi, P., Burkhart, B., Chan, C. K., Jacobson, S. A., Morrison, S., Nam, N., Naoz, S., Peter, A., Ramirez-Ruiz, E., Abrahams, E., Bailin, J., **Blecha, L.**, Bostroem, A., Bogdanović, T., Boylan-Kolchin, M., Bellm, E. Bromm, V., Brooks, A., Bryan, G. L., Bullock, J., Chonacky, N., Christensen, C., Cruz, K., Donahue, M., Eifler, T., Faucher-Giguère, C. -A., Feigelson, E., Follette, K., Ford, E., Gabriel, T., Gnedin, O., Hayward, C., Hernquist, L., Hilborn, R., Ivezić, Z., Johnston, K. V., Juneau, S., Jurić, M., Kereš, D., Krause, E., Kravtsov, A., Lidz, A., Madigan, A. M., Markoff, S., Narayanan, D., Norman, D., O’Shea, B., Offner, S., Olsen, K., Paschalidis, V., Pinto, P., Ragozzine, D., Sales, L. V., Siemiginowska, A., Sipőcz, B., Stone, J., Tchekhovskoy, A., Tollerud, E., Torrey, P., Trac, H., Turk, M., Valluri, M., Vogelsberger, M., Walker, C., Walkowicz, L., Weltman, A., Wetzel, A., Wise, J., Zaldarriaga, M., Zhu, Z., Zingale, M., Aykutalp, A., Biwer, C., Bradley, P., Butler-Craig, N., Dingus, B., Fogerty, E., Fryer, C., Gandolfi, S., Gilmer, M., Guo, F., Guzik, J., Hungerford, A., Kilian, P., Korobkin, O., Lippuner, J., Li, H., Medin, Z., Miller, J., Mumpower, M., Polko, P., Rassel, M., Taylor, M., Wiggins, B., Wollaeger, R. 2019: “Training the Future Generation of Computational Researchers”, Astro2020: Decadal Survey on Astronomy and Astrophysics, APC white papers, no. 11; Bulletin of the American Astronomical Society, 51, id. 11
- Civano, F., Cappelluti, N., Hickox, R., Canning, R., Aird, J., Ajello, M., Allen, S., Bañados, E., **Blecha, L.**, Brandt, W. N., Brusa, M., Carrera, F., Cappi, M., Comastri, A., Dolag, K., Donahue, M., Elvis, M., Fabbiano, G., Fornasini, F., Gandhi, P., Georgakakis, A., Holley-Bockelmann, K., Koekemoer, A., Goulding, A., Jones, M., Laha, S., LaMassa, S., Lanzuisi,

- G., Lanz, L., Mantz, A., Marchesi, S., Mezcua, M., Mingo, B., Nandra, K., Stern, D., Swartz, D., Tremblay, G., Tzanavaris, P., Vikhlinin, A., Vito, F., & Wilkes, B. 2019: "Cosmic evolution of supermassive black holes: A view into the next two decades", *Astro2020: Decadal Survey on Astronomy and Astrophysics*, science white papers, no. 429; *Bulletin of the American Astronomical Society*, Vol. 51, Issue 3, id. 429 (2019)
- Kelley, L. Z., Charisi, M., Burke-Spolaor, S., Simon, J., **Blecha, L.**, Bogdanovic, T., Colpi, M., Comerford, J., D'Orazio, D. J., Dotti, M., Eracleous, M., Graham, M., Greene, J. E., Haiman, Z., Holley-Bockelmann, K., Kara, E., Kelly, B., Komossa, S., Larson, S. L., Liu, X., Ma, C.-P., Noble, S., Paschalidis, V., Rafikov, R. R., Ravi, V., Runnoe, J. C., Sesana, A., Stern, D., Strauss, M. A., U, V., Volonteri, M., & the NANOGrav Collaboration 2019: "Multi-Messenger Astrophysics with Pulsar Timing Arrays", *Astro2020 Decadal Survey White Paper*, *Astro2020: Decadal Survey on Astronomy and Astrophysics*, science white papers, no. 429; *Bulletin of the American Astronomical Society*, 51, id. 490
  - Koss, M., U, V., Hodges-Kluck, E., Treister, E., **Blecha, L.**, Ricci, C., Kartaltepe, J., Kocevski, D., Comerford, J. M., Barrows, R. S., Ciccone, C., Muller-Sanchez, F., Gultekin, K., Foord, A., Satyapal, S., & Lotz, J., 2019: "Black Hole Growth in Mergers and Dual AGN", *Astro2020: Decadal Survey on Astronomy and Astrophysics*, science white papers, no. 504
  - **Blecha, L.** 2015: "The Dynamic Lives of Supermassive Black Holes in Merging Galaxies", *Proceedings of the Frank N. Bash Symposium 2015 (BASH2015)*. 18-20 October. The University of Texas at Austin, USA.
  - **Blecha, L.**, Cox, T. J., Loeb, A., & Hernquist, L. 2012: "Recoiling Black Holes in Merging Galaxies: Relationship to AGN Lifetimes, Starbursts, and the M - sigma Relation", *Advances in Computational Astrophysics: Methods, Tools, and Outcomes*, ASP Conference Proceedings, 453, 187
  - **Blecha, L.**, Cox, T. J., Loeb, A., & Hernquist, L., 2010: "Recoiling black holes in merging galaxies: relationship to active galactic nucleus lifetimes, starbursts and the  $M_{\text{BH}} - \sigma_*$  relation", *Proceedings of the 25th Texas Symposium on Relativistic Astrophysics*, 9

## Press Releases

- *Found: Three Black Holes on Collision Course*, NASA, Sept. 25, 2019
- *Astronomers Find Pairs of Black Holes at the Centers of Merging Galaxies*, UMD, Nov. 7, 2018  
*UF Astronomer Joins Team of Researchers Studying Black Hole Mergers*, UF, Nov. 7, 2018  
*Astronomers Unveil Growing Black Holes in Colliding Galaxies*, NASA, Nov. 7, 2018  
*Astronomers Get Best View Yet Of Supermassive Black Holes In Merging Galaxies, Slowly Moving On A Collision Course With Each Other*, Keck, Nov. 7, 2018
- *Seeing Double: Scientists Find Elusive Giant Black Hole Pairs*, NASA/Chandra, Oct. 3, 2017
- *Merging Galaxies Have Enshrouded Black Holes*, NASA/NuSTAR, May 9, 2017
- *NuSTAR Probes Puzzling Galaxy Merger*, NASA/NuSTAR, Mar. 27, 2017
- *NASA's Swift Mission Probes an Exotic Object: 'Kicked' Black Hole or Mega Star?*, NASA press release, Nov. 19, 2014



*A Jettisoned Black Hole?*, ETH-Zurich, Nov. 19, 2014

*Dwarf Galaxy Mystery: 'Kicked' Black Hole or Mega Star?*, UMD, Nov. 19, 2014

- *Galactic collision gave Andromeda its arms*, Nature News, June 3, 2014
- *Giant Black Hole Kicked Out of Home Galaxy*, NASA/Chandra, June 6, 2012

## Teaching & Advising

### Courses

- PHY4095: Physical Modeling & Simulation, UF, Fall 2019
- PHY2060: Enriched Physics w/ Calc 1, UF, Spring 2019, Fall 2020, Spring 2021
- PHZ5155C & PHY4095: Physical Modeling & Simulation, UF, Fall 2018
- PHY2054: Physics 2, Discussion Sections (3), UF, Spring 2018

### Current Students & Postdocs

- Aneesh Sivasankaran, Ph.D. student, UF, 2020 - Present
- Neil Ash, Undergraduate researcher, UF, 2020 - Present
- Aklant Bhowmick, Postdoctoral researcher, UF, 2019 - Present
- Anais Lawrence, Ph.D. student, UF, 2019 - Present
- Mohammad Sayeb, Ph.D. student, UF, 2017 - Present (Planned completion in Summer 2021)
- July Thomas, Ph.D. student, UF, 2017 - Present

### Former Students

- Kaitlyn Kosciw, Post-Bac. researcher, UF, 2020
- Jacob Plummer, undergrad student, UF, 2019
- Giraldo Pino, Post-Bac. researcher, UF, 2018 - 2019
- Megan Newsome, Post-Bac. researcher, UF, 2018 - 2019
- Rebecca Nevin, Ph.D. 2019, CU Boulder (co-advised with Julia Comerford)
- Luke Kelley, Ph.D. 2018, Harvard (co-advised with Lars Hernquist)
- James Drew Hogg, Ph.D. 2018, UMD (co-advised with Chris Reynolds)
- Marion Dierickx, Ph.D. 2017, Harvard (co-advised with Avi Loeb)
- Victoria Martz, Undergrad. student, UMD, 2013-2014 (co-advised with Chris Reynolds)
- Fatima Abdurrahman, Undergrad. student, UMD, 2013 - 2014 (co-advised with Chris Reynolds)

## Academic Service

- Referee for Nature, Science, ApJ, MNRAS, A&A, & NAR
- Associate Member, LISA Consortium
- Associate Member, NANOGrav Collaboration
- Elected Member, APS Division of Astrophysics (DAP) Executive Committee, 2020 - Present
- Elected Member, UF Physics Department Salary Review Committee, 2021 - Present
- Elected Member, UF Physics Departmental Advisory Committee, 2019 - 2020
- Founding Member, Faculty Coordinating Committee for UF Physics Inclusion, Diversity, & Equity Alliance (IDEA), 2021 - Present

- Faculty Coordinator, Promoting Inclusive Physics & Astronomy (formerly Women in Physics & Astronomy), UF, 2017 - Present
- Member, AAS Beatrice M. Tinsley Prize Selection Committee, 2021
- Panel Member, JWST Review, 2021
- Panel Member, NSF Review, 2020, 2015
- Panel Member/Reviewer, HST Review, 2017, 2018
- Panel Member, NASA Reviews, 2014, 2016
- Organizer, Theoretical Astrophysics Seminar, UF, 2017 - Present
- Organizer, Better Astronomy for the New Generation (BANG) Seminar, UMD, 2015 - 2017
- Member, Astronomy Department Equity & Inclusion Committee, UMD, 2014 - 2017
- Member, Joint Space-Science Institute Website & Outreach Committee, 2013 - 2015
- Organizer, CTC Theory Lunch Seminar, UMD, Spring/Fall 2013
- Member, Harvard-Smithsonian Center for Astrophysics Library Committee, 2009 - 2011
- Organizer, Graduate Student Research Forum (seminar series), Harvard, 2007 - 2008

## Outreach

- Co-organizer, Annual UF celebration of U.N. International Day for Women & Girls in Science, 2018 - Present
- Mentor for UF University Multicultural Mentoring Program, 2018 - Present
- Guest Lecture (virtual), 5th-grade FL classroom, Scientist in Every Florida School, 2021
- Guest Lecture (virtual), MAST @ FIU High School Space Club, 2020
- Research Mentor for UMD GRAD-MAP Winter Workshop, 2016, 2017
- Public Lecture, GRAD-MAP event at Howard Univ., 2016
- Public Lecture, Czechoslovak Society of Arts & Sciences (SVU), Washington DC, 2016
- Public Lecture, Astronomy on Tap, Washington DC, 2016
- Public Lecture, National Capital Astronomers, College Park, MD, 2015
- Public Lectures, UMD Observatory Open House, 2012, 2015
- Public Lecture, AstroTerps Astronomical Society for undergraduates, UMD, 2014
- Keynote Speaker, 20th Annual Science Symposium for Girls (free program for junior high girls from Honolulu-area schools), Sacred Hearts Academy, Honolulu, HI, 2014
- Guest Lecturer for physics & astronomy class, Sacred Hearts Academy, Honolulu, HI, 2014
- Guest on Hawaii Public Radio "Conversations" Program, Honolulu, HI, 2014
- Public Lecture, GRAD-MAP event at Baltimore City Community College, 2014
- Volunteer, GRAD-MAP winter workshop panel on graduate school preparation, 2014
- Public Lecture, Keene Public Library Astronomy Lecture Series, Keene, NH, 2012
- Academic Careers Panel, UMD, 2012, 2014
- Academic Tutor with Cambridge School Volunteers (tutoring program for Cambridge Public Schools), Cambridge Rindge & Latin High School, 2006 - 2010
- Volunteer Teacher, Science Club for Girls (after-school program for K-8 girls in Boston area schools), 2008 - 2011

## Scientific Talks

### Invited Conference Talks

- Black Holes & Galaxies at the Edge of the Universe, Ringberg invited conference, Mar. 2020
- Panelist, Special Session: New Results From NANOGrav, 235th AAS Meeting, Honolulu, HI, Jan. 2020
- The New Faces of Black Holes (JSI Workshop), Nov. 2019
- LISA Consortium Meeting, Gainesville, FL, Apr. 2019
- PCTS conference: The Accretion Signatures of the Earliest Black Holes in the Universe, Princeton, NJ, Apr. 2019
- BASS Workshop, Gainesville, FL, Feb. 2019
- 2nd COFI Workshop on Gravitational Waves, San Juan, Puerto Rico, Oct. 2018
- AXIS Summer Workshop, Washington, DC, Aug. 2018
- Aspen Center for Physics Colloquium, Aspen, CO, July 2018
- Invited Review, Massive black holes in evolving galaxies: from quasars to quiescence (34th IAP Conference), Paris, France, June 2018
- Special Session: Multi-messenger Observations of IMBHs with LISA, AAS 231st Winter Meeting, Jan. 2018
- Elusive AGN Conference, George Mason Univ., June 2017
- Frank N. Bash Symposium, UT Austin, Oct. 2015
- Boulder Extragalactic Astrophysics Retreat (BEAR) invited workshop, CU Boulder, July 2015
- AREPO-Fest 2, Cambridge, MA, Sep. 2014
- COSPAR 2014, Moscow, Russia, Aug. 2014
- Black Hole (g)astronomy conference, Brindisi, Italy, Sep. 2013
- AREPO-Fest, Heidelberg, Germany, Sep. 2013
- JSI Mini-Symposium, UMD, Oct. 2012
- CSIRO Conference, Queensland, Australia, June 2008

### Invited Seminars and Colloquia

- Astrophysical & Cosmological Relativity Seminar (virtual), Albert Einstein Institute, Mar. 2021
- Astrophysics Seminar (virtual), UC Irvine, Mar. 2021
- Physics & Astronomy Dept. Colloquium (virtual), Univ. of Toledo, Feb. 2021
- Galaxy Crawl Seminar (virtual), Univ. of Arizona, Jan. 2021
- Physics Dept. Colloquium (virtual), Southern Methodist Univ., Oct. 2020
- JPL Astrophysics Colloquium (virtual), Oct. 2020
- UF Physics Dept. Colloquium (virtual), Mar. 2020
- CIERA Seminar, Northwestern Univ., Oct. 2019
- US Naval Observatory Colloquium, May 2019
- Physics Dept. Colloquium, Montana State Univ., Dec. 2018
- CRA Seminar, Georgia Tech, Nov. 2017
- Theoretical Astrophysics Seminar, Univ. of Florida, Apr. 2017
- IAS Seminar, Institute for Advanced Study, Mar. 2017

- ITC Colloquium, Harvard Univ., Mar. 2017
- Theoretical Astrophysics Program Colloquium, Univ. of Arizona, Nov. 2016
- Astronomy Dept. Colloquium, UMD, Oct. 2016
- Physics Dept. Colloquium, UW-Milwaukee, Sept. 2016
- Astronomy Dept. Colloquium, UIUC, Apr. 2016
- Physics Dept. Colloquium, Univ. Florida, Feb. 2016
- APS Colloquium, CU Boulder, Feb. 2016
- CCAPP Seminar, OSU, Feb. 2016
- JILA Seminar, CU Boulder, Apr. 2015
- Astronomy Dept. Colloquium, UC Santa Cruz, Dec. 2014
- CAS Seminar, Johns Hopkins, Nov. 2014
- TAC Seminar, UC Berkeley, Nov. 2014
- Astronomy Dept. Colloquium, Univ. of Michigan, Oct. 2014
- WEDGE Seminar, Institute for Astronomy, Hawaii, Feb. 2014
- SPACS Colloquium, George Mason Univ., Mar. 2013
- Astronomy Dept. Colloquium, Yale, Feb. 2013
- NASA GSFC Gravitational Astrophysics Group Branch Lunch, Dec. 2012
- Gravity Seminar, UMD, Dec. 2012
- Special Seminar, Johns Hopkins, Nov. 2012
- Special Seminar, Columbia Univ., Dec. 2011
- Wunch Seminar, Princeton, Nov. 2011
- Extragalactic Seminar, UT Austin, Nov. 2011
- Cosmology Seminar, Yale, Nov. 2011
- CITA Seminar, CITA, Oct. 2011
- CAS Seminar, Johns Hopkins, Oct. 2011
- Theory Lunch Seminar, UMD, Oct. 2011
- TAC Seminar, UC Berkeley, Sept. 2011
- Cosmology Group Meeting Seminar, MPA, June 2011
- Theory Meeting Seminar, MPIA, June 2011
- KICP Seminar, Univ. of Chicago, Apr. 2011
- Special Seminar, Northwestern Univ., Apr. 2011
- Monday Lunch Seminar, CfA ITC, Apr. 2011
- Friday Lunch Talk, Carnegie Observatories, Jan. 2011
- Summer Colloquium, CfA, July 2010
- Monday Lunch Seminar, CfA ITC, Nov. 2009

#### Contributed Conference Talks

- NANOGrav Fall Meeting (virtual), Oct. 2020
- 13th International LISA Symposium (virtual), Sept. 2020
- APS April Meeting (virtual), April 2020
- 235th AAS Meeting, Honolulu, HI, Jan. 2020
- Radio/Millimeter Astrophysical Frontiers in the Next Decade, Charlottesville, VA, June 2019

- IllustrisTNG Workshop, MPA, Garching, Germany, Oct. 2018
- 12th International LISA Symposium, Chicago, IL, July 2018
- Generation GW: Diving into Gravitational Waves Conference, St. Thomas, U.S. Virgin Islands, June 2017
- Breaking the Limits: Super-Eddington Accretion onto Compact Objects, Arbatax, Italy, Sept. 2016
- JSI Workshop: The Physics of Supermassive Black Hole Formation and Feedback, Annapolis, MD, Oct. 2015
- 29th IAU General Assembly Focus Meeting: The Gravitational Wave Symphony of Structure Formation, Honolulu, HI, Aug. 2015
- Aspen Winter Conference on Black Holes in Dense Star Clusters, Aspen, CO, Jan. 2015
- 225th AAS Meeting, Seattle, WA, Jan. 2015
- Einstein Fellows Symposia, Cambridge, MA, Oct. 2012, 2013, & 2014
- 223rd AAS Meeting, National Harbor, MD, Jan. 2014
- JSI Workshop: Putting Accretion Theory to the Test, Annapolis, MD, Nov. 2013
- KITP Conference, Santa Barbara, CA, Aug. 2013
- Mind the Gap, Cambridge, UK, July 2013
- 221st AAS Meeting, Long Beach, CA, Jan. 2013
- Binary Black Holes & Dual AGN: A Workshop in Memory of David S. De Young, Tucson, AZ, Nov. 2012
- JSI Mini-Symposium, College Park, MD, Oct. 2012
- Interacting Galaxies and Binary Quasars, Trieste, Italy, Apr. 2012
- 219th AAS Meeting, Austin, TX, Jan. 2012
- Workshop on Single and Double Black Holes in Galaxies, U. of Michigan, Aug. 2011
- Advances in Computational Astrophysics, Cefalù, Italy, June 2011
- 218th AAS Meeting, Boston, MA, May 2011
- 25th Texas Symposium on Relativistic Astrophysics, Heidelberg, Germany, Dec. 2010
- Formation and Evolution of Black Holes, Aspen Center for Physics, Feb. 2010
- Stars and Singularities Workshop, Weizmann Institute, Israel, Dec. 2009
- IMBH Workshop, UC Irvine, Apr. 2009
- Galaxy Workshop, Napa Valley, Feb. 2009