

KAREEM EL-BADRY

Division of Physics, Math, and Astronomy
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RESEARCH INTERESTS

binary stars, stellar-mass black holes, neutron stars, white dwarfs;
near-field cosmology, galactic archaeology, globular clusters;
galaxy formation, low-mass galaxies, stellar feedback

EDUCATION

Ph.D., Astrophysics, University of California, Berkeley	2021
Advisors: Eliot Quataert, Dan Weisz	
M.A., Astrophysics, University of California, Berkeley	2018
B.S., Astronomy & Physics, <i>summa cum laude</i> , Yale University	2016
Advisor: Marla Geha	

RESEARCH POSITIONS

Assistant Professor, California Institute of Technology	2023–
Junior Fellow, Harvard Society of Fellows	2021 – 2023
ITC Fellow, Harvard-Smithsonian Center for Astrophysics	2021 – 2023
Postdoctoral Fellow, recurring summer appointment, MPIA, Heidelberg	2021 – 2023
Graduate Student, University of California, Berkeley	2016 – 2021
Kavli Summer Research Fellow, CCA, NYC	2018
Summer Visiting Researcher, MPIA, Heidelberg	2017 – 2020
Summer Undergraduate Research Fellow, Caltech	2015
Undergraduate Research Assistant, Yale	2015 – 2016
Dean's Summer Research Fellow, Yale	2014

HONORS & AWARDS

IAU Ph.D. Prize, Stars and Stellar Physics division	2022
Mary Elizabeth Uhl Dissertation Prize, Berkeley	2021
Outstanding Graduate Student Instructor Award, Berkeley	2021
Robert J. Trumpler Graduate Student Excellence Award, Berkeley	2020
CCAPP Prize in Cosmology and AstroParticle Physics	2018
NSF Graduate Research Fellowship	2016 – 2021
Berkeley Fellowship	2016 – 2018
Hellman Award for Graduate Study	2016 – 2018
George Beckwith Prize in Astronomy, Yale	2016
Phi Beta Kappa, Yale	2015
Jerry Inskeep Memorial Scholarship, Yale	2014

AWARDED TELESCOPE TIME (SUMMARY)

Magellan 6.5m	9 nights (PI) + 3 nights (CO-I)
HST	19 orbits (PI) + 76 orbits (CO-I)
LBT 2×8.4 m	3 nights (PI) + 3 nights (CO-I)
Keck 10m	10 nights (PI) + 25 nights (CO-I)
Palomar Hale 200 inch	2 nights (PI) + 25 nights (CO-I)
MPG/ESO La Silla 2.2m	40 nights (PI) + 30 nights (CO-I)
Las Cumbres Observatory 2×1 m	1.5 nights (PI)
Tillinghast 1.5m FLWO	24 nights (PI)
Lick Shane 3m	26 nights (PI)
Lick APF 2.4m	5 nights (CO-I)
Nordic Optical Telescope 2.6m	12 nights (CO-I)

NTT 3.6m	3 nights (CO-I)
McDonald 2.7m Harlan J. Smith Telescope	5 nights (CO-I)
Gemini 8.1m	20 hours (PI) + 3 hours (DDT; PI)
VLT 8.2m	36 hours (PI) + 3 hours (DDT; PI)
Very Large Array	4 hours (DDT; CO-I)
Green Bank Telescope	12 hours (CO-I)
MeerKAT	4 hours (DDT; CO-I)
Chandra	20ks (DDT; PI) + 20ks (DDT; CO-I)

OBSERVING EXPERIENCE

Public data – significant experience with data from Gaia, Kepler/K2, TESS, LAMOST, SDSS, ZTF	
Lick Shane telescope, KAST Spectrograph – 28 nights	2020-2021
Keck DEIMOS – 2.5 nights	2017
Keck ESI – 7 nights	2015, 2016, 2021-2023
Keck LRIS – 3 nights	2021-2023
Keck HIRES – 1 night	2022
Palomar Hale telescope, DBSP – 3 nights	2021-2023
Palomar Hale telescope, Wide-Field IR Camera – 1 night	2015
WIYN, Hydra Multi-Fiber Spectrograph – 2 nights	2014
Arecibo, L-Band HI – 2 nights	2013, 2014

JOURNAL REFEREE

A&A, A&AL, ApJ, ApJL, MNRAS, MNRASL, SCPMA, Nature Astronomy	31 papers total; 2017 –
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STUDENT MENTORING

Domani Sharkey (Caltech undergrad)	2024 –
Maude Gull (Berkeley PhD student)	2022 –
Umrhan Koca (Caltech undergrad)	2023 – 2024
Lisa Blomberg (Caltech PhD student)	2023 –
Evan Portnoi (Caltech undergrad)	2023 –
Johanna Müller-Horn (MPIA PhD student)	2023 –
Antonio Rodriguez (Caltech PhD student)	2022 –
Natsuko Yamaguchi (Caltech PhD student)	2022 –
Pranav Nagarajan (Caltech PhD student)	2020 –
Rhys Seeburger (MPIA PhD student)	2021 –
Jesse Han (Harvard PhD student)	2022 – 2023
Vedant Chandra (Harvard PhD student)	2021 – 2023
Silvia Almada (MPIA masters student)	2020 – 2022
Nick Choksi (Berkeley undergrad; now Berkeley PhD student)	2018 – 2019

TEACHING EXPERIENCE

Instructor, Ay 123, <i>Stellar Structure and Evolution</i> , Caltech,	2024
Graduate Student Instructor, Astro 128, <i>Astronomy Data Lab</i> , University of California, Berkeley	2019, 2020, 2021
Course Designer, Astro 128, <i>Astronomy Data Lab</i> , University of California, Berkeley	2018, 2019, 2020
Co-Instructor, Astro 375, <i>Graduate Pedagogy</i> , University of California, Berkeley	2019, 2020
Sole Instructor, <i>Stellar Physics</i> , Hyeonpung High School, Daegu, South Korea	2019
Graduate Student Instructor, Astro 160, <i>Stellar Physics</i> , University of California, Berkeley	2018
Graduate Student Instructor, Astro 7A, <i>Introduction to Astronomy</i> , University of California, Berkeley	2017
Graduate Student Instructor, Astro C12, <i>The Planets</i> , University of California, Berkeley	2017
Tutor & Grader, Math 120, <i>Multivariable Calculus</i> , Yale	2013 – 2016
Tutor, Math 111, <i>College Algebra</i> , Umpqua Community College	2013

TALKS (SINCE 2017)

UCSC Astronomy Colloquium, Santa Cruz, CA	2023
Sydney Institute for Astronomy seminar, Sydney, AU	2023
Astrophysics colloquium, Carnegie Observatories, Pasadena, CA	2023
Review talk, Massive Triples, Binaries and Mergers, Leuven, Belgium	2023
Review talk, Lorentz center workshop on stellar black holes, Leiden, Netherlands	2023
Astrophysical sciences division colloquium, NASA/Goddard	2023
Astrophysics colloquium, Boston University	2023
Astrophysics colloquium, Cornell University	2023
Astrophysics colloquium, University of Pennsylvania	2023
Astrophysics colloquium, University of Michigan	2022
Talk, KITP white dwarf conference, Santa Barbara, CA	2022
Astrophysics colloquium, Dunlap Institute, University of Toronto	2022
Astrophysics colloquium, Yale University	2022
Talk, ZTF theory network meeting, CA	2022
Talk, EUROWD22, Tübingen, Germany	2022
Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany	2022
Astrophysics colloquium, Shanghai Astronomical Observatory	2022
Astrophysics colloquium, University of California, Los Angeles	2022
IAU working group on active B stars seminar	2022
Albert Einstein Institute seminar, Potsdam, Germany	2022
UCSD/SDSU joint colloquium, San Diego	2021
Harvard Society of Fellows lunch talk, Harvard University	2021
Stellar Astrophysics Center seminar, Aarhus University, Aarhus, Denmark	2021
Astrophysics colloquium, Massachusetts Institute of Technology	2021
Institute of Theory and Computation colloquium, Harvard University	2021
Königstuhl colloquium, Max Planck Institute for Astronomy, Heidelberg, Germany	2021
Astrophysics colloquium, CIERA center, Northwestern University	2021
Astronomy seminar, University of Warwick, UK	2021
Lunch talk, University of California, Berkeley	2021
Astronomy colloquium, University of California, Berkeley	2021
Astronomy colloquium, California Institute of Technology	2021
Astronomy colloquium, University of Chicago	2021
Physics colloquium, University of Utah	2021
Lunch talk, University of California, Berkeley	2020
Tea talk, California Institute of Technology	2020
CIERA seminar, Northwestern University	2020
Summer astrophysics colloquium, Princeton University	2020
Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany	2020
Lunch talk, University of California, Berkeley	2020
Astronomy seminar, Center for Computational Astrophysics, NYC	2020
Talk, ZTF theory meeting	2020
Astronomy seminar, University of Chicago	2019
Tea talk, Kavli Institute for Particle Astrophysics and Cosmology, Stanford University	2019
Lunch talk, University of California, Berkeley	2019
Astronomy seminar, Boston University	2019
Galaxies and cosmology seminar, Center for Astrophysics, Harvard University	2019
Tea talk, California Institute of Technology	2019
Invited talk, The Milky Way 2019: LAMOST and other Leading Survey meeting, Yichang, China	2019
Astronomy seminar, Charles University, Prague, Czech Republic	2019
Contributed talk, Universe of Binaries meeting, Telč, Czech Republic	2019
Contributed talk, CosmoDwarfs meeting, Durham, UK	2019
Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany	2019
Lunch talk, University of California, Berkeley	2019
FLASH seminar, UC Santa Cruz	2019
Cosmology seminar, UC Davis	2019
Invited talk, Lorentz Center workshop on globular clusters, Leiden, Netherlands	2019
Invited talk, Near/Far workshop, Napa, CA	2018
Lunch talk, University of California, Berkeley	2018
Grad student+postdoc seminar, University of California, Berkeley	2018

CCAPP Price Prize colloquium, Ohio State University	2018
Invited talk, Galactic angular momentum focus group, IAU, Vienna, Austria	2018
Contributed talk, Kavli Summer Program in Astrophysics, Center for Computational Astrophysics, NYC	2018
Lunch talk, Center for Computational Astrophysics, NYC	2018
Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany	2018
Galaxy lunch, Yale University	2018
Grad student+postdoc seminar, University of California, Berkeley	2018
Lunch talk, University of California, Berkeley	2018
Invited talk, Near/Far workshop, Napa, CA	2017
Lunch talk, University of California, Berkeley	2017
SFB seminar, ARI, Heidelberg, Germany	2017
Galaxy coffee, Max Planck Institute for Astronomy, Heidelberg, Germany	2017
Contributed poster, Galaxy-Halo Connection Workshop, KITP	2017
Grad student+postdoc seminar, University of California, Berkeley	2017
Lunch talk, University of California, Berkeley	2017
GalForm seminar, University of California, Berkeley	2017

REFEREED PUBLICATIONS (106 TOTAL; 30 FIRST-AUTHOR)

h-index: 41 (all papers), 22 (first-author papers)

citations: 4500+ (all papers), 1900+ (first-author papers)

106. Zhang, K., Zang, W., **El-Badry, K.**, Lu, J. R., Bloom, J. S., Agol, E., Gaudi, S. B., Konopacky, Q., LeBaron, N., Mao, S., Terry, S., 2024, “An Earth-mass planet and a brown dwarf orbiting a white dwarf”, *Nature*, submitted.
105. **El-Badry, K.**, Simon, J. D., Reggiani, H., Rix, H.-W., Latham, D. W., Beiryla, A., Buchhave, L. A., Shahaf, S., Mazeh, T., Chakrabarti, S., Guhathakurta, P., Ilyin, I. V., 2024, “A $1.9 M_{\odot}$ neutron star candidate in a 2-year orbit”, arXiv:2402.06722, *OJAp*, submitted.
104. Nagarajan, P., **El-Badry, K.**, Triaud, A. H. M. J., Baycroft, T. A., Latham, D., Bieryla, A., Buchhave, L. A., Rix, H.-W., Quataert, E., Howard, A., Isaacson, H., Hobson, M. J., 2023, “ESPRESSO observations of Gaia BH1: high-precision orbital constraints and no evidence for an inner binary”, arXiv:2312.05313, *PASP*, in press.
103. Galiullin, I., Rodriguez, A. C., Kulkarni, S. R., Sunayev, R., Gilfanov, M., Bikmaev, I., Yungelson, L., van Roestel, J., Gänsicke, B. T., Khamitov, I., Szkody, P., **El-Badry, K.**, Suslikov, M., Prince, T. A., Buntov, M., Caizzo, I., Gorbachev, M., Graham, M. J., Gumerov, R., Irtuganov, E., Laher, R. R., Medvedev, P., Riddle, R., Rusholme, B., Sakhibullin, N., Sklyanov, A., Vanderbosch, Z. P., 2023, “A joint SRG/eROSITA + ZTF search: Discovery of a 97-min period eclipsing cataclysmic variable with evidence of a brown dwarf secondary”, arXiv:2401.04178, *MNRAS*, in press.
102. Rodriguez, A. C., Cendes, Y., **El-Badry, K.**, Berger, E., 2023, “No X-rays or radio from the nearest black holes and implications for future searches”, arXiv:2311.05685, *PASP*, in press.
101. Arseneau, S., Chandra, V., Hwang, H.-C., Zakamska, N. L., Pallathadka, G. A., Crumpler, N. R., Hermes, J.J., **El-Badry, K.**, Rix, H.-W., Stassun, K. G., Gaensicke, B. T., Brownstein, J. R., Morrison, S., 2023, “Measuring the mass-radius relation of white dwarfs using wide binaries”, arXiv:2310.19866, *ApJ*, in press.
100. Werner, K., Reindl, N., Rauch, T., **El-Badry, K.**, Bedard, A., 2023, “The photospheres of the hottest fastest stars in the Galaxy”, arXiv:2311.13388, *A&A*, in press.
99. Pallathadka, G. A., Chandra, V., Zakamska, N. L., Hwang, H.-C., Zenati, Y., Hermes, J., **El-Badry, K.**, Gaensicke, B., Morrison, S., Crumpler, N. R., Arseneau, S., 2023, “Discovery of a proto-white dwarf with a massive unseen companion”, arXiv:2310.16313, *ApJ*, submitted.
98. Belloni, D., Schreiber, M. R., Moe, M., **El-Badry, K.**, Shen, K. J., 2023, “Evidence for saturated and disrupted magnetic braking from samples of detached close binaries with M and K dwarfs”, arXiv:2311.04309, *A&A*, in press.
97. Yamaguchi, N., **El-Badry, K.**, Fuller, J., Latham, D. W., Cargile, P. A., Mazeh, T., Shahaf, S., Bieryla, A., Buchhave, L. A., Hobson, M., “Wide post-common envelope binaries containing ultramassive white dwarfs: evidence for efficient envelope ejection in massive AGB stars”, arXiv:2309.15905, *MNRAS*, in press.

96. Shahaf, S., Hallakoun, N., Mazeh, T., Ben-Ami, S., Rekhi, P., **El-Badry, K.**, Toonen, S., 2023, “Triage of the Gaia DR3 astrometric orbits. II. A census of white dwarfs”, arXiv:2309.15143, MNRAS, submitted.
95. Wu, Z., Dong, S., Yi, T., Liu, Z., **El-Badry, K.**, Gould, A., Christie, G. W., de Almeida, L., Monard, L. A. G., McCormick, J., Chen H., Huang, Y., Liu, C., Merand, A., Mroz, P., Shangguan, J., Udalski, A., Woillez, J., Zhang, H., 2023, “Gaia22dkvLb: A microlensing planet potentially accessible to radial-velocity characterization”, arXiv:2309.03944, ApJ, submitted.
94. Miller, D. R., Caiazzo, I., Heyl, J., Richer, H. B., **El-Badry, K.**, Rodriguez, A. C., Vanderbosch, Z. P., van Roestel, J., 2023, “An Extremely Massive White Dwarf Escaped From the Hyades Star Cluster”, arXiv:2310.03204, ApJL, 956, 41.
93. **El-Badry, K.**, Burdge, K., van Roestel, J., Rodriguez, A. C., 2023, “A transiting brown dwarf in a 2 hour orbit”, arXiv:2307.15729, OJAp, 6, 33.
92. Rodriguez, A. C., Galiullin, I., Gilfanov, M., Kulkarni, S. R., Khamitov, I., Bikmaev, I., van Roestel, J., Yungelson, L., **El-Badry, K.**, Sunayev, R., Prince, T. A., Buntov, M., Caiazzo, I., Drake, A., Gorbachev, M., Graham, M. J., Gumerov, R., Irtuganov, E., Laher, R. R., Masci, F. J., Medvedev, P., Purdum, J., Sakhbullin, N., Sklyanov, A., Smith, R., Szkody, P., Vanderbosch, Z. P., 2023, “SRGeJ045359.9+622444: A 55-min Period Eclipsing AM CVn Discovered from a Joint SRG/eROSITA + ZTF Search”, arXiv:2306.13133, ApJ, 954, 63.
91. **El-Badry, K.**, Shen, J. K., Chandra, V., Bauer, E., Fuller, F., Strader, J., Chomiuk, L., Naidu, R., Caiazzo, I., Rodriguez, A. C., Nagarajan, P., Natsuko, Y., Vanderbosch, Z. P., Roulston, B. R., Gaensicke, B., Han, J. J., Burdge, K. B., Filippenko, A. V., Brink, T. G., Zheng, W., 2023, “The fastest stars in the Galaxy”, arXiv:2306.03914, OJAp, 6, 28.
90. Yamaguchi, N., **El-Badry, K.**, Rodriguez, A. C., Gull, M., Roulston, B., Vanderbosch, Z. P., 2023, “Sodium enhancement in evolved cataclysmic variables”, arXiv:2304.13750, MNRAS, 524, 740.
89. Nagarajan, P., **El-Badry, K.**, Rodriguez, A. C., van Roestel, J., Roulston, B., 2023, “Spectroscopic follow-up of black hole and neutron star candidates in ellipsoidal variables from Gaia DR3”, arXiv:2304.07324, MNRAS, 524, 4367.
88. Burdge, K., **El-Badry, K.**, Rappaport, S., Wong, T. L. S., Bauer, E. B., Bildsten, L., Caizzo, I., Chakrabarty, D., Chickles, E., Graham, M. J., Kara, E., Kulkarni, S. R., Marsh, T. R., Nynka, M., Prince, T. A., Simcoe, R. A., van Roestel, J., Vanderbosch, Z., Bellm, E. C., Dekany, R. G., Drake, A. J., Helou, G., Masci, F. J., Milburn, J., Riddle, R., Rusholme, B., Smith, R., 2023, “Orbital decay in an accreting and eclipsing 13.7 minute orbital period binary with a luminous donor”, arXiv:2303.13573, ApJL, 953, 1.
87. Andrae, R., and **El-Badry, K.**, 2023, “Constraints on the cosmological coupling of black holes from *Gaia*”, arXiv:2305.01307, A&AL, 673, 10.
86. **El-Badry, K.**, Rix, H.-W., Cendes, Y., Rodriguez, A. C., Conroy, C., Quataert, E., Hawkins, K., Zari, E., Hobson, M., Breivik, K., Rau, A., Berger, E., Shahaf, S., Seeburger, R., Burdge, K. B., Latham, D. W., Buchhave, L. A., Bieryla, A., Bashi, D., Mazeh, T., Faigler, S., “A red giant orbiting a black hole”, arXiv:2302.07880, MNRAS, 521, 4323.
85. Hopkins, P. F., Gurvich, A. B., Shen, X., Hafen, Z., Grudic, M. Y., Kurinchi-Vendhan, S., Hayward, C. C., Jiang, F., Orr, M. E., Wetzell, A., Kereš, D., Stern, J., Faucher-Giguère, C.-A., Bullock, J., Wheeler, C., **El-Badry, K.**, Loebman, S. R., Moreno, J., Boylan-Kolchin, M., Quataert, E., 2022, “What causes the formation of disks and end of bursty star formation?”, arXiv:2301.08263, MNRAS, 525, 2241.
84. Green, M. J., Maoz, D., Mazeh, T., Faigler, S., Shahaf, S., Gomel, R., **El-Badry, K.**, Rix, H.-W., 2022, “15,000 ellipsoidal binary candidates in TESS: Orbital periods, binary fraction, and tertiary companions”, arXiv:2211.06194, MNRAS, 522, 29.
83. Burdge, K., **El-Badry, K.**, Marsh, T., Rappaport, S., Brown, W., Caiazzo, I., Chakrabarty, D., Dhillon, V., Fuller, J., Gaensicke, B., Graham, M., Kara, E., Kulkarni, S., Littlefair, S., Mroz, P., Rodriguez-Gil, P., van Roestel, J., Simcoe, R., Bellm, E., Drake, A., Dekany, R., Masci, F., Riddle, R., Smith, R., Prince, T., 2022, “A dense 0.1 M_{\odot} star in a 51-minute orbital period eclipsing binary”, arXiv:2210.01809, Nature, 610, 467.
82. **El-Badry, K.**, Rix, H.-W., Quataert, E., Howard, A. W., Isaacson, H., Fuller, J., Hawkins, K., Breivik, K., Wong, K. W. K., Rodriguez, A. C., Conroy, C., Shahaf, S., Mazeh, T., Arenou, F., Burdge, K. B., Bashi, D., Faigler, S., Weisz D. R., Seeburger, R., Almada Monter, S., Wojno, J., 2022, “A Sun-like star orbiting a black hole”, arXiv:2209.06833, MNRAS, 518, 1057.

81. Toloza, O., Gänsicke, B. T., Guzmán-Rincón, L. M., Marsh, T. R., Szkody, P., Schreiber, M. R., de Martino D., Zorotovic, M., **El-Badry, K.**, Koester, D., Lagos, F., 2022, “The C/N ratio from FUV spectroscopy as a constraint upon the past evolution of HS 0218+3229”, arXiv:2209.06873, MNRAS, 523, 305.
80. Shahaf, S., Bashi, D., Mazeh, T., Faigler, S., Arenou, F., **El-Badry, K.**, Rix, H.-W., 2022, “Triage of the Gaia astrometric orbits. I. A sample of binaries with probable compact companions”, arXiv:2209.00828, MNRAS, 518, 2991.
79. Gull, M., Weisz, D. R., Senchyna, P., Sandford, N. R., Choi, Y., Mcleod, A. F., **El-Badry, K.**, Gotberg, Y., Gilbert, K. M., Boyer, M., Dalcanton, J. J., Guhathakurta, P., Goldman, S., Marigo, P., McQuinn, K., Pastorelli, G., Stark, D. P., Skillman, E., Ting, Y.-S., Williams, B. F., 2022, “A panchromatic study of massive stars in the extremely metal-poor local group dwarf galaxy Leo A”, arXiv:2211.14349, ApJ, 941, 206.
78. **El-Badry, K.**, Conroy, C., Fuller, J., Kiman, R., van Roestel, J., Kiman, R., Rodriguez, A. C., Burdge, K., 2022, “Magnetic braking saturates: evidence from the period distribution of low-mass eclipsing binaries from ZTF”, arxiv:2208.05488, MNRAS, 517, 4916.
77. Bashi, D., Shahaf, S., Mazeh, T., Faigler, S., Subo, D., **El-Badry, K.**, Rix, H.-W., Jorissen, A., 2022, “Gaia spectroscopic orbits validated with LAMOST and GALAH radial velocities”, arxiv:2207.08832, MNRAS, 517, 3888.
76. **El-Badry, K.**, and Rix, H.-W., 2022, “What are the spectroscopic binaries with high mass functions near the *Gaia* DR3 main sequence?”, arXiv:2206.07723, MNRAS, 515, 1266.
75. Rodriguez, A. C., Kulkarni, S. R., Prince, T. A., Szkody, P., Burdge, K. B., Caiazzo, I., van Roestel, J., Vanderbosch, Z. P., **El-Badry, K.**, Bellm, E. C., Gansicke, B. T., Graham, M. J., Mahabal, A. A., Masci, F. J., Mroz, P., Riddle, R., Rusholme, B., 2022, “Discovery of Two Polars from a Crossmatch of ZTF and the SRG/eFEDS X-ray Catalog”, arXiv:2206.04714, ApJ, 945, 141.
74. Fitzmaurice, E., Martin, D. V., Martinez, R. R., Valley, P., Stephan, A. P., Boley, K. M., Pogge, R., **El-Badry, K.**, Kunovac, V., Triaud, A. H. M. J., 2022, “Spectroscopy of TOI-1259B - an unpolluted white dwarf companion to an inflated warm Saturn”, arXiv:2206.01259, MNRAS, 518, 636.
73. Hwang, H.-C., **El-Badry, K.**, Rix, H.-W., Hamilton, C., Ting, Y.-S., Zakamska, N., 2022, “Wide twin binaries are extremely eccentric: evidence of twin binary formation in circumbinary disks”, arXiv:2205.05690, ApJL, 933, 32.
72. Jayasinghe, T., Thompson, T. A., Kochanek, C. S., Stanek, K. Z., Rowan, D. M., Martin, D. V., **El-Badry, K.**, Valley, P. J., Hinkle, J. T., Huber, D., Isaacson, H., Tayar, J., Auchettl, K., Ilyin, I., Howard, A. W., Badenes, C., 2022, “The ‘Giraffe’: Discovery of a stripped red giant in an interacting binary with a $\sim 2 M_{\odot}$ lower giant”, arXiv: 2201.11131, MNRAS, 516, 5945.
71. Shenar, T., Sana, H., Mahy, L., **El-Badry, K.**, Marchant, P., Langer, N., Hawcroft, C., Fabry, M., Sen, K., Almeida, L., Abdul-Masih, M., Bodensteiner, J., Crowther, P., Gieles, M., Gromadzki, M., Henault-Brunet, V., Herrero A., de Koter, A., Iwanek, P., Kozłowski, S., Lennon, D., Apellaniz, J., Mroz, P., Moffat, A., Picco, A., Pietrukowicz, P., Poleski, R., Rybicki, K., Schneider, F., Skowron, D., Skowron, J., Soszynski, I., Szymanski, M., Toonen, S., Udalski, A., Ulaczyk, K., Vink, J., Wrona, M., 2022, “An X-ray quiet black hole born with a negligible kick in a massive binary of the Large Magellanic Cloud”, arXiv:2207.07675, Nature Astronomy, 6, 1085.
70. Sameie, O., Boylan-Kolchin, M., Hopkins, P.F., Wetzel, A., Ma, X., Bullock, J., **El-Badry, K.**, Quataert, E., Samuel, J., Schauer, A., Weisz, D., 2022, “Formation of proto-globular cluster candidates in cosmological simulations of dwarf galaxies at $z > 4$ ”, arXiv:2204.00638, MNRAS, 522, 1800.
69. Heintz, T., Hermes, J.J., **El-Badry, K.**, Walsh, C., van Saders, J. L., Fields, C., Koester, D., 2022, “Testing white dwarf age estimates using wide double white dwarf binaries from Gaia eDR3”, arXiv:2206.00025, ApJ, 934, 148.
68. **El-Badry, K.**, Seeburger, R., Jayasinghe, T., Rix, H.-W., Almada, S., Conroy, C., Price-Whelan, A., Burdge, 2022, “Unicorns and Giraffes in the binary zoo: stripped giants with subgiant companions”, arXiv:2203.06348, MNRAS, 512, 5620.
67. Wetzel, A., Hayward, C. C., Sanderson, R. E., Ma, X., Angles-Alcazar, D., Feldmann, R., Chan, T.K., **El-Badry, K.**, Wheeler, C., Garrison-Kimmel, S., Nikakhtar, F., Panithanpaisal, N., Arora, A., Gurvich, A. B.,

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