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MATTHEW R. SIEBERT

CURRICULUM VITAE

PHD INFORMATION

Affiliation: University of California Santa Cruz

PhD Topic: Type Ia Supernova Spectroscopy

PhD Advisor: Ryan Foley

EDUCATION

Cornell University, Ithaca, NY

Bachelor of Science: Engineering Physics

Graduated: May 2016

AWARDS AND FELLOWSHIPS

- 2018 UC Santa Cruz Department of Astronomy and Astrophysics Graduate Student Excellence Award (2018)
- 2017-2018 National Science Foundation Graduate Research Fellowship (2017-2018)

PUBLICATIONS

1st Author Publications

- 2019 **"Investigating the Diversity of Type Ia Supernova Spectra with the Open-Source Relational Database Kaepora"**. M. R. Siebert, R. J. Foley, D. O. Jones, R. Angulo, K. Davis, A. Duarte, E. Strasburger, M. Conlon, N. Kazmi, R. Nishimoto, M. Schubert, L. Sun, and R. Tipples. 2019. *Submitted to Monthly Notices of the Royal Astronomical Society*.

"The Unprecedented Properties of the First Electromagnetic Counterpart to a Gravitational-wave Source". Siebert, M. R.; Foley, R. J.; Drout, M. R.; Kilpatrick, C. D.; Shappee, B. J.; Coulter, D. A.; Kasen, D.; Madore, B. F.; Murguia-Berthier, A.; Pan, Y. -C.; Piro, A. L.; Prochaska, J. X.; Ramirez-Ruiz, E.; Rest, A.; Contreras, C.; Morrell, N.; Rojas-Bravo, C.; Simon, J. D. 10/2017. *The Astrophysical Journal Letters, Volume 848, Issue 2, article id. L26, 6 pp.*

Co-authored Publications

- 2019 **"Discovery of Highly Blueshifted Broad Balmer and Metastable Helium Absorption Lines in a Tidal Disruption Event"**. Hung, T.; Cenko, S. B.; Roth, Nathaniel; Gezari, S.; Veilleux, S.; Van Velzen, Sjoert; Gaskell, C. Martin; Foley, Ryan J.; Blagorodnova, N.; Yan, Lin; Graham, M. J.; Brown, J. S.; **Siebert, M. R.**; Frederick, Sara; Ward, Charlotte; Gatkine, Pradip; Gal-yam, Avishay; Yang, Yi; Schulze, S.; Dimitriadis, G. Kupfer, Thomas; Shupe, David L.; Rusholme, Ben; Masci, Frank J.; Riddle, Reed; Soumagnac, Maayane T.; Van Roestel, J.; Dekany, Richard. 03/2019. arXiv:1903.05637.

"Gravity and Light: Combining Gravitational Wave and Electromagnetic Observations in the 2020s".

Foley, R. J.; Alexander, K. D.; Andreoni, I.; Arcavi, I.; Auchettl, K.; Barnes, J.; Baym, G.; Bellm, E. C.; Beloborodov, A. M.; Blagorodnova, N.; Blakeslee, J. P.; Brady, P. R.; Branchesi, M.; Brown, J. S.; Butler, N.; Cantiello, M.; Chornock, R.; Cook, D. O.; Cooke, J.; Coppejans, D. L. Corsi, A.; Couch, S. M.; Coughlin, M. W.; Coulter, D. A.; Cowperthwaite, P. S.; Dietrich, T.; Dimitriadis, G.; Drout, M. R.; Elias, J. H.; Farr, B.; Fernandez, R.; Filippenko, A. V.; Fong, W.; Fragos, T.; Frail, D. A.; Freedman, W. L.; Fryer, C. L.; Golkhou, V. Z.; Hiramatsu, D.; Hjorth, J.; Horesh, A.; Hosseinzadeh, G.; Hotokezaka, K.; Howell, D. A.; Hung, T.; Jones, D. O.; Kalogera, V.; Kasen, D.; Kerzendorf, W. E.; Kilpatrick, C. D.; Kirshner, R. P.; Krisciunas, K.; Lattimer, J. M.; Lazzati, D.; Levan, A. J.; MacFadyen, A. I.; Maeda, K.; Mandel, I.; Mandel, K. S.; Margalit, B.; Margutti, R.; McIver, J.; Metzger, B. D.; Mooley, K.; Moriya, T.; Murguia-Berthier, A.; Narayan, G.; Nicholl, M.; Nissanke, S.; Nomoto, K.; O'Meara, J. M.; O'Shaughnessy, R.; O'Connor, E.; Palmese, A.; Pan, Y. -C.; Pankow, C.; Paterson, K.; Perley, D. A.; Perna, R.; Piro, A. L.; Pritchard, T. A.; Quataert, E.; Radice, D.; Ramirez-Ruiz, E.; Reddy, S.; Rest, A.; Riess, A. G.; Rodriguez, C. L.; Rojas-Bravo, C.; Rossi, E. M.; Rosswog, S.; Ruiz, M.; Shapiro, S. L.; Shoemaker, D. H.; **Siebert, M. R.**; Siegel, D. M.; Sieliez, K.; Smith, N.; Soares-Santos, M.; Suntzeff, N. B.; Surman, R.; Tanaka, M.; Tanvir, N. R.; Terreran, G.; Valenti, S.; Villar, V. A.; Wang, L.; Webb, S. A.; Wheeler, J. C.; Williams, P. K. G.; Woosley, S.; Zaldarriaga, M.; Zevin, M. 03/2019. arXiv:1903.04553

- 2018 **"The Foundation Supernova Survey: Measuring Cosmological Parameters with Supernovae from a Single Telescope"**. Jones, D. O.; Scolnic, D. M.; Foley, R. J.; Rest, A.; Kessler, R.; Challis, P. J.; Chambers, K. C.; Coulter, D. A.; Dettman, K. G.; Foley, M. M.; Huber, M. E.; Jha, S. W.; Johnson, E.; Kilpatrick, C. D.; Kirshner, R. P.; Manuel, J.; Narayan, G.; Pan, Y. -C.; Riess, A. G.; Schultz, A. S. B. **Siebert, M. R.**; Berger, E.; Chornock, R.; Flewelling, H.; Magnier, E. A.; Smartt, S. J.; Smith, K. W.; Wainscoat, R. J.; Waters, C.; Willman, M. 11/2018. arXiv:1811.09286.
- "SN 2017ens: The Metamorphosis of a Luminous Broadlined Type Ic Supernova into an SN IIn"**. Chen, T. -W.; Inserra, C.; Fraser, M.; Moriya, T. J.; Schady, P.; Schweyer, T.; Filippenko, A. V.; Perley, D. A.; Ruiter, A. J.; Seitzzahl, I.; Sollerman, J.; Taddia, F.; Anderson, J. P.; Foley, R. J.; Jerkstrand, A.; Ngeow, C. -C.; Pan, Y. -C.; Pastorello, A.; Points, S.; Smartt, S. J. Smith, K. W.; Taubenberger, S.; Wiseman, P.; Young, D. R.; Benetti, S.; Berton, M.; Bufano, F.; Clark, P.; Della Valle, M.; Galbany, L.; Gal-Yam, A.; Gromadzki, M.; Gutiérrez, C. P.; Heinze, A.; Kankare, E.; Kilpatrick, C. D.; Kuncarayakti, H.; Leloudas, G.; Lin, Z. -Y.; Maguire, K.; Mazzali, P.; McBrien, O.; Prentice, S. J.; Rau, A.; Rest, A.; **Siebert, M. R.**; Stalder, B.; Tonry, J. L.; Yu, P. -C. 11/2018. *The Astrophysical Journal Letters*, Volume 867, Issue 2, article id. L31, 8 pp.
- "Should Type Ia Supernova Distances Be Corrected for Their Local Environments?"**. Jones, D. O.; Riess, A. G.; Scolnic, D. M.; Pan, Y. -C.; Johnson, E.; Coulter, D. A.; Dettman, K. G.; Foley, M. M.; Foley, R. J.; Huber, M. E.; Jha, S. W.; Kilpatrick, C. D.; Kirshner, R. P.; Rest, A.; Schultz, A. S. B.; **Siebert, M. R.** 11/2018. *The Astrophysical Journal*, Volume 867, Issue 2, article id. 108, 14 pp.
- "Three Hypervelocity White Dwarfs in Gaia DR2: Evidence for Dynamically Driven Double-degenerate Double-detonation Type Ia Supernovae"**. Shen, Ken J.; Boubert, Douglas; Gänsicke, Boris T.; Jha, Saurabh W.; Andrews, Jennifer E.; Chomiuk, Laura; Foley, Ryan J.; Fraser, Morgan; Gromadzki, Mariusz; Guillochon, James; Kotze, Marissa M.; Maguire, Kate; **Siebert, Matthew R.**; Smith, Nathan; Strader, Jay; Badenes, Carles; Kerzendorf, Wolfgang E.; Koester, Detlev; Kromer, Markus; Miles, Broxton Pakmor, Rüdiger; Schwab, Josiah; Toloza, Odette; Toonen, Silvia; Townsley, Dean M.; Williams, Brian J. 09/2018. *The Astrophysical Journal*, Volume 865, Issue 1, article id. 15, 14 pp.
- "SN 2016esw: a luminous Type II supernova observed within the first day after the explosion"**. de Jaeger, Thomas; Galbany, Lluís; Gutiérrez, Claudia P.; Filippenko, Alexei V.; Zheng, WeiKang; Brink, Thomas G.; Foley, Ryan J.; Sánchez, Sebastian F.; Channa, Sanyum; de Kouchkovsky, Maxime; Halevi, Goni; Kilpatrick, Charles D.; Kumar, Sahana; Molloy, Jeffrey; Pan, Yen-Chen; Ross, Timothy W.; Shivvers, Isaac; **Siebert, Matthew R.**; Stahl, Benjamin; Stegman, Samantha Yunus, Sameen. 08/2018. *Monthly Notices of the Royal Astronomical Society*, Volume 478, Issue 3, p.3776-3792.
- "The Foundation Supernova Survey: motivation, design, implementation, and first data release"**. Foley, Ryan J.; Scolnic, Daniel; Rest, Armin; Jha, S. W.; Pan, Y. -C.; Riess, A. G.; Challis, P.; Chambers, K. C.; Coulter, D. A.; Dettman, K. G.; Foley, M. M.; Fox, O. D.; Huber, M. E.; Jones, D. O.; Kilpatrick, C. D.; Kirshner, R. P.; Schultz, A. S. B.; **Siebert, M. R.**; Flewelling, H. A.; Gibson, B. Magnier, E. A.; Miller, J. A.; Primak, N.; Smartt, S. J.; Smith, K. W.; Wainscoat, R. J.; Waters, C.; Willman, M. 03/2018. *Monthly Notices of the Royal Astronomical Society*, Volume 475, Issue 1, p.193-219.
- 2017 **"Electromagnetic evidence that SSS17a is the result of a binary neutron star merger"**. Kilpatrick, C. D.; Foley, R. J.; Kasen, D.; Murguia-Berthier, A.; Ramirez-Ruiz, E.; Coulter, D. A.; Drout, M. R.; Piro, A. L.; Shappee, B. J.; Boutsia, K.; Contreras, C.; Di Mille, F.; Madore, B. F.; Morrell, N.; Pan, Y. -C.; Prochaska, J. X.; Rest, A.; Rojas-Bravo, C.; **Siebert, M. R.**; Simon, J. D. Ulloa, N. 12/2017. *Science*, Volume 358, Issue 6370, pp. 1583-1587.
- "Early spectra of the gravitational wave source GW170817: Evolution of a neutron star merger"**. Shappee, B. J.; Simon, J. D.; Drout, M. R.; Piro, A. L.; Morrell, N.; Prieto, J. L.; Kasen, D.; Holoien, T. W. -S.; Kollmeier, J. A.; Kelson, D. D.; Coulter, D. A.; Foley, R. J.; Kilpatrick, C. D.; **Siebert, M. R.**; Madore, B. F.; Murguia-Berthier, A.; Pan, Y. -C.; Prochaska, J. X.; Ramirez-Ruiz, E.; Rest, A. Adams, C.; Alatalo, K.; Bañados, E.; Baughman, J.; Bernstein, R. A.; Bitsakis, T.; Boutsia, K.; Bravo, J. R.; Di Mille, F.; Higgs, C. R.; Ji, A. P.; Maravelias, G.; Marshall, J. L.; Placco, V. M.; Prieto, G.; Wan, Z. 12/2017. *Science*, Volume 358, Issue 6370, pp. 1574-1578.
- "Light curves of the neutron star merger GW170817/SSS17a: Implications for r-process nucleosynthesis"**. Drout, M. R.; Piro, A. L.; Shappee, B. J.; Kilpatrick, C. D.; Simon, J. D.; Contreras, C.; Coulter, D. A.; Foley, R. J.; **Siebert, M. R.**; Morrell, N.; Boutsia, K.; Di Mille, F.; Holoien, T. W. -S.; Kasen, D.; Kollmeier, J. A.; Madore, B. F.; Monson, A. J.; Murguia-Berthier, A.; Pan, Y. -C.; Prochaska, J. X. Ramirez-Ruiz, E.; Rest, A.; Adams, C.; Alatalo, K.; Bañados, E.; Baughman, J.; Beers, T. C.; Bernstein, R. A.; Bitsakis, T.; Campillay, A.; Hansen, T. T.; Higgs, C. R.; Ji, A. P.; Maravelias, G.; Marshall, J. L.; Moni Bidin, C.; Prieto, J. L.; Rasmussen, K. C.; Rojas-Bravo, C.; Strom, A. L.; Ulloa, N.; Vargas-González, J.; Wan, Z.; Whitten, D. D. 12/2017. *Science*, Volume 358, Issue 6370, pp. 1570-1574.

“Swope Supernova Survey 2017a (SSS17a), the optical counterpart to a gravitational wave source”. Coulter, D. A.; Foley, R. J.; Kilpatrick, C. D.; Drout, M. R.; Piro, A. L.; Shappee, B. J.; **Siebert, M. R.**; Simon, J. D.; Ulloa, N.; Kasen, D.; Madore, B. F.; Murguia-Berthier, A.; Pan, Y. -C.; Prochaska, J. X.; Ramirez-Ruiz, E.; Rest, A.; Rojas-Bravo, C. 12/2017. *Science*, Volume 358, Issue 6370, pp. 1556-1558.

“A gravitational-wave standard siren measurement of the Hubble constant”. Abbott, B. P. et al. 11/2017. *Nature*, Volume 551, Issue 7678, pp. 85-88.

“A Neutron Star Binary Merger Model for GW170817/GRB 170817A/SSS17a”. Murguia-Berthier, A.; Ramirez-Ruiz, E.; Kilpatrick, C. D.; Foley, R. J.; Kasen, D.; Lee, W. H.; Piro, A. L.; Coulter, D. A.; Drout, M. R.; Madore, B. F.; Shappee, B. J.; Pan, Y. -C.; Prochaska, J. X.; Rest, A.; Rojas-Bravo, C.; **Siebert, M. R.**; Simon, J. D. 10/2017. *The Astrophysical Journal Letters*, Volume 848, Issue 2, article id. L34, 8 pp.

“The Old Host-galaxy Environment of SSS17a, the First Electromagnetic Counterpart to a Gravitational-wave Source”. Pan, Y. -C.; Kilpatrick, C. D.; Simon, J. D.; Xhakaj, E.; Boutsia, K.; Coulter, D. A.; Drout, M. R.; Foley, R. J.; Kasen, D.; Morrell, N.; Murguia-Berthier, A.; Osip, D.; Piro, A. L.; Prochaska, J. X.; Ramirez-Ruiz, E.; Rest, A.; Rojas-Bravo, C.; Shappee, B. J.; **Siebert, M. R.** 10/2017. *The Astrophysical Journal Letters*, Volume 848, Issue 2, article id. L30, 7 pp.

“Multi-messenger Observations of a Binary Neutron Star Merger”. Abbott, B. P. et al. 10/2017. *The Astrophysical Journal Letters*, Volume 848, Issue 2, article id. L12, 59 pp.

“On the Progenitor of the Type IIb Supernova 2016gkg”. Kilpatrick, Charles D.; Foley, Ryan J.; Abramson, Louis E.; Pan, Yen-Chen; Lu, Cicero-Xinyu; Williams, Peter; Treu, Tommaso; **Siebert, Matthew R.**; Fassnacht, Christopher D.; Max, Claire E. 03/2017. *Monthly Notices of the Royal Astronomical Society*, Volume 465, Issue 4, p.4650-4657

Astronomer’s Telegrams (Unrefereed):

12 first authored

23 co-authored

OBSERVING EXPERIENCE

Keck – Optical Spectroscopy/Adaptive Optics Imaging
Shane (Lick) – Optical Spectroscopy
SOAR – Optical Spectroscopy (Goodman)
KPNO Mayall – Optical Spectroscopy (KOSMOS)
Nickel (Lick) – Direct Imaging
George H. Herbig Observational Astronomy Workshop. Lick Observatory, Mt. Hamilton, CA. – Shane and Nickel.

PRESENTATIONS

Talks:

2018 FLASH Talk, Department of Astronomy, University of Arizona. *Investigating the Diversity of Type Ia Supernova Observations with a Relational Database*. 8/2/2018.

FLASH Talk, Department of Astronomy and Astrophysics, UC Santa Cruz. *Familiar and Exotic Events in the Current Transient Landscape*. 4/20/2018.

Posters:

2017 F.O.E. Fifty-One Erg Supernova Conference. Corvallis, OR. *A Relational Database for Type Ia Supernova Observations*. 6/5/2017.

OTHER RESEARCH EXPERIENCE

MIT Haystack Observatory

A New Software User Interface for the Upgraded Haystack 37-meter Radio Telescope
June 2015 – August 2015

REFERENCES

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