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| CONTACT INFORMATION | Stony Brook University Department of Physics and Astronomy Stony Brook, NY 11794, USA | <i>E-mail:</i> simon.birrer@stonybrook.edu <i>Web:</i> https://sibirrer.github.io <i>ORCID:</i> 0000-0003-3195-5507 |
| RESEARCH INTERESTS | Cosmology - gravitational lensing - probing fundamental physics with astrophysical observables - dark matter - dark energy | |
| RESEARCH POSITIONS | Assistant Professor Stony Brook University | 01/2023 - |
| | Kavli Postdoctoral Fellow Stanford University Advisor: Risa Wechsler | 09/2019 - 01/2023 |
| | Postdoctoral Researcher University of California, Los Angeles (UCLA) Advisor: Tommaso Treu | 01/2017 - 08/2019 |
| EDUCATION | PhD in Physics (Dr. Sc. ETH in Physik) Swiss Federal Institute of Technology (ETH Zürich) Advisors: Alexandre Réfrégier, Adam Amara | 05/2013 - 12/2016 |
| | M. Sc. in Physics (MSc ETH in Physik) Swiss Federal Institute of Technology (ETH Zürich) Advisors: Alexandre Réfrégier, Simon Lilly | 09/2011 - 03/2013 |
| | Student exchange program Hong Kong University of Science and Technology (HKUST) | 08/2010 - 12/2010 |
| | B. Sc. in Physics (BSc ETH in Physik) Swiss Federal Institute of Technology (ETH Zürich) | 09/2008 - 08/2011 |
| TEACHING | AST443/PHY517: Observational Techniques in Astronomy <i>Upper-level undergraduate and graduate course, lecture materials, Stony Brook</i> | Fall 2023 & Spring 2024 & Fall 2024 |
| | Strong lensing: Mexican AstroCosmo Statistics School 2021 <i>Lecturing an interactive course on strong gravitational lensing, lecture notebooks, Mexico (virtual)</i> | Summer 2021 |
| | Advanced Physics Lab: Advanced bachelor level lab course <i>Responsible for the telescope and operation, mentoring student projects, ETH Zürich</i> | Fall 2014 - Fall 2016 |
| | Astrophysics I: 3 rd yr undergraduate course <i>Teaching assistant, taught weekly practice class, ETH Zürich</i> | Fall 2013 |

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| Physics I: 1 st yr undergraduate course (Physics & Maths students) <i>Teaching assistant, taught weekly practice class, ETH Zürich</i> | Fall 2012 |
| Analysis II: 1 st yr undergraduate course (Physics & Maths students) <i>Teaching assistant, taught weekly practice class, ETH Zürich</i> | Spring 2010, Spring 2011 |
| Swiss Physics Olympiads: High school physics competition <i>Taught lectures and exercises to prepare students for the International Physics Olympiad</i> | 2008 - 2016 |

MENTORING

Stony Brook University

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| Narayan Khadka , Postdoc (pubs) | 2023 - present |
| Xiangyu Huang , graduate student | 2023 - present |
| Alan Huang , graduate student | 2024 - present |
| Jocelyn McMahon Karthik , masters student | 2024 - present |
| Alex Landry , masters student | 2024 - present |
| Rahul Karthik , masters student | 2023 - present |
| Ryan Brady , undergraduate student | 2024 - present |
| Caitlin Cassini , masters student | 2023 - 2024 |
| Xianzhe Tang , undergraduate student | 2023 - 2024 |
| Emrecan Sonmez , URECA program, undergraduate student | 2023 - present |
| Saketh Bhattiprolu , undergraduate student | 2023 |
| Ronon Malga , undergraduate student | 2023 |
| Ethan Franco , undergraduate student | 2023 |
| Shauna Sheppard , REU program, undergraduate student | 2023 |
| Sameer Sing , URECA program, undergraduate student | 2023 |
| Jonathan Benz , undergraduate student | 2023 |
| Maytal Cooper , undergraduate student | 2023 |
| Jessica Jung , undergrad student | 2022 |

Stanford University

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| Siyi Song , undergrad summer student, Stanford | 2022 |
| Vikram Bhamre , high school student | 2022 |
| Sydney Erickson , PhD thesis, Stanford | 2021 - present |
| Elise Darragh-Ford , PhD thesis, Stanford (pubs) | 2020 - 2022 |
| Ethan Nadler , PhD thesis, Stanford (pubs) | 2020 - 2021 |
| Madison Ueland , undergrad summer student, Stanford (pubs) | 2020, 2021 |
| Ji Won Park , PhD thesis, Stanford (pubs) | 2019 - present |
| Sebastian Wagner-Carena , PhD thesis, Stanford (pubs) | 2019 - 2023 |

University of California, Los Angeles

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| Thomas Schmidt , PhD thesis, UCLA (pubs) | 2019 - 2023 |
| Lilan Yang , PhD thesis, UCLA (pubs) | 2018 - 2020 |

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| Anowar Shajib , PhD thesis, UCLA (pubs) | 2017 - 2020 |
| Daniel Gilman , PhD thesis, UCLA (pubs) | 2017 - 2020 |
| Eden Molina , Undergrad project, UCLA (pubs) | 2018 - 2019 |

ETH Zurich

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| Felix A. Kuhn , Semester & Master thesis, ETH Zurich (pubs) | Fall 2016 |
| Florian Lienhard , Semester thesis, ETH Zurich | Spring 2016 |
| Felix Mayor , Semester thesis, ETH Zurich | Spring 2016 |
| Cyril Welschen , Master thesis, ETH Zurich | Fall 2015 - Spring 2016 |
| Kevin Fusshoeller , Semester thesis, ETH Zurich | Spring 2015 |
| Janik Andrejkovic , Semester thesis, ETH Zurich | Spring 2015 |

AWARDS AND
SUPPORT

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| Nomination for George E. Valley Jr. Prize (APS Award) | 2020 |
| Kavli Fellowship (Postdoctoral Fellowship) at Stanford University <i>3 years independent postdoctoral fellowship to conduct research in cosmology at Stanford, USD 210'000</i> | 2019 |
| Kugelpyramide (lifetime award) of the Swiss Scientific Olympiads <i>Awarded annually to a personality who made significant contributions to Youth and Science.</i> | 2016 |
| Experimental Innovation Award (teaching award) of the Department of Physics, ETH Zürich <i>for the best innovation in the Advanced Student Lab of the year</i> | 2016 |
| Swiss Study Foundation, PhD program <i>promotions for prosperous PhD students in acquiring interdisciplinary and non-academic skills</i> | 2013 - 2016 |
| Swiss Study Foundation, student program <i>promotions for prosperous students in acquiring interdisciplinary and non-academic skills</i> | 2009 - 2013 |
| Swiss Physics Olympiad <i>High school level individual physics competition.</i> <i>1. place (winner) preliminary round</i> <i>1. place (winner) national round</i> <i>Honorable mention, International Physics Olympiad, Isfahan, Iran</i> | 2007 |

OBSERVER
EXPERIENCE

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| Keck1 with OSIRIS , 3 half nights <i>IFU observations of absorption line spectroscopy for resolved stellar kinematics, remote observing</i> | 06/2017 |
| Blanco telescope (CTIO) with DECam , 8 nights <i>Observer for the Dark Energy Survey</i> | 11/2014 |

50 cm corrected Dall-Kirkham design, ~ 30 nights 2013 - 2016
Instructor of the advanced lab course at ETH Zürich

GRANTED
PROPOSALS

Allocated observations

- Co-I**, *Pioneering Precision: Advancing Cosmology with the First Statistical Sample of Gravitationally Lensed Supernovae*, HST Cycle 31 (+JWST), PI: J. Pierel 08/2023
- Co-I**, *GO: Calibrating the Black-Hole Mass Scaling Relations using Reverberation-Mapped Active Galaxies with Velocity-Resolved Measurements*, HST Cycle 30, PI: V. Bennert 06/2022
- Co-I**, *Time-delay Cosmography with Strongly Lensed Quasars: Doubles vs. Quads*, HST Cycle 30, PI: C. Lemon, \$104,692 06/2022
- Co-I**, *A 4% determination of the Hubble constant from gravitational time delays with maximally flexible lens mass profile*, HST Cycle 30, PI: T. Treu 06/2022
- US-PI**, *Strong lensing commissioning*, Vera Rubin Observatory 01/2022
- Co-I**, *Exploring optical quasar variability from intraday to monthly rest-frame timescales*, GNTT spectroscopy 27.6h, PI: C. Lemon 12/2021
- Co-I**, *A Galaxy Redshift Survey of the Line-of-Sight Environment of Three Lensed Quasar Quads*, GEMINI South spectroscopy 13.3h, PI: E. Buckley-Geer 12/2021
- Co-I**, *Probing Dark Matter Self Interaction with Strong Lensing Clusters*, GEMINI North spectroscopy 6.4h, PI: T. Jeltema 12/2021
- Co-I**, *A Galaxy Redshift Survey of the Line-of-Sight Environments of Four Lensed Quasar Quads*, GEMINI South spectroscopy 26h, PI: E. Buckley-Geer 06/2021
- Co-I**, *High-cadence Lens Monitoring for Time Delay Cosmography*, NOAO LCO-2m, PI: C. Chen 06/2021
- Co-I**, *100% gain in precision and accuracy of H_0 measurement from JWST stellar kinematics of a lens galaxy*, JWST Cycle 1, PI: A. Yildirim 03/2021
- Co-I**, *A definitive test of the dark matter paradigm on small scales*, JWST Cycle 1, PI: A. Nierenberg 03/2021
- Co-I**, *H_0 , the stellar initial mass function, and other dark matters from a large sample of quadruply imaged quasars*, HST, PI: T. Treu 08/2018
- Co-I**, *Testing CDM with the WFC3 Grism*, HST, PI: A. Nierenberg 04/2017
- Co-I**, *Probing the dark universe with quadruply imaged quasars*, HST, PI: T. Treu 04/2017
- Co-I**, *The first quadruply lensed quasars from the DES and VST ATLAS surveys*, HST, PI: P. Schechter 04/2016

Co-I, *A unique probe of the dark matter distribution in a halo at $z=1$: A strong lens with a bright central image*, HST, PI: T. Collett 04/2016

Allocated computational resources

Co-PI, *Highly-detailed strong-gravitational lens modeling to measure the Hubble constant*, XSEDE startup allocation, 100'000 CPU hours, PI: T. Treu, A. Shajib (lead) 08/2019

Analysis proposals

Co-I, *Enhancing the Roman Cosmology Program with Strongly Lensed Supernovae*, NASA Roman WFS, PI: J. Pierel, \$136,126 07/2023

Co-I, *Preparing for a leap: Precursor Strong Lensing Science with Roman Towards Precision Cosmology*, NASA Roman WFS, PI: T. Daylan, \$102,399 07/2023

Co-I, *Systematics in H_0 from lensing: a comprehensive study of internal structure in elliptical galaxies*, HST archival, PI: A. Shajib 05/2020

COMMUNITY
CONTRIBUTIONS

Collaboration contributions and memberships

LSST-DESC, *Collaboration Council member* 2024 - 2026

LSST Strong Lensing Science Collaboration, *co-chair* 2023 -

LSST-DESC, *Strong lensing topical team co-convenor* 2022 - 2023

LensWatch, *member* 2021 - present

LSST Strong Lensing Science Collaboration, *member* 2020 - present

SkyPy project, *member* 2020 - present

Hyper Suprime-Cam Survey, *external collaborator* 2019 - present

LSST-DESC, *full member* 2019 - present

TDCOSMO collaboration, *founding member, lead author of a key publication* 2019 - present

The Dark Energy Survey (DES), *Strong Lensing Working Group coordinator* 2017 - 2023

Deep Skies Lab, *member* 2018 - present

KAPA collaboration, *science team member* 2018 - present

H0LiCOW collaboration, *Member, lead author of a key publication* 2017 - 2020

STRIDES collaboration, *Co-PI* 2017 - present

The Dark Energy Survey (DES), *Member, data access rights* 2013 - present

Community services

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| lensing at different scales: strong, weak, and synergies between the two, conference, Chicago, <i>SOC member</i> | 07/2023 |
| IAU symposion on strong lensing, conference, Puglia, <i>SOC member</i> | 06/2023 |
| BOOM! A workshop on explosive transients with LSST, conference, Urbana-Champaign, <i>SOC member</i> | 07/2022 |
| KIPAC-SITP joint theory-observation journal club, <i>co-initiator</i> | 2021 - 2022 |
| Snowmass 2021, <i>Community white paper co-facilitator</i> | 2021 - 2022 |
| KIPAC LSST early release science group, Stanford University, <i>co-organizer</i> | 2020 - 2022 |
| Astrophysics graduate admission committee, Stanford University, <i>member</i> | 2020/2021 |
| Colloquium committee, Stanford University, <i>member</i> | 2020 - 2022 |
| Shedding Light on the Dark Universe with Extremely Large Telescopes, conference, UCLA, <i>LOC member</i> | 04/2018 |
| Tuesday Lunch Talk, seminar series, UCLA, <i>coordinator</i> | 2018 - 2019 |
| Astronomy diversity committee, UCLA, <i>member</i> | 2018 - 2019 |
| NASA time allocation committee, <i>referee for HST mid-cycle</i> | 2019, 2020, 2021 |
| Referee for <i>Nature Astronomy</i> , <i>PRD</i> , <i>PRL</i> , <i>Monthly Notices of the Royal Astronomical Society</i> , <i>The Astrophysical Journal</i> , <i>Astronomy&Astrophysics</i> , <i>Astronomy&Computing</i> , <i>JOSS</i> , <i>ECMS23</i> | 2017 - present |
| <i>Broader impact services</i> | |
| International Physics Olympiad 2016, Zurich <i>Executive chairman, Budget of CHF 3 Mio.</i> | 2014 - 2016 |
| Municipality planing panel, Buchrain, Switzerland <i>Member, Strategic planing and advisory board of the municipality</i> | 2012 - 2016 |
| Swiss Physics Olympiad, <i>national coordinator</i> <i>Responsible for the national selection process and training</i> | 2010 - 2015 |

CONFERENCES & [*invited, †virtual]
WORKSHOPS

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| TDCOSMO collaboration meeting, Munich, GER | 07/2024 |
| DESC collaboration meeting, Zurich, SUI | 07/2024 |
| LSST Strong Lensing meeting, Oxford, UK | 03/2024 |
| * RAS multi-messenger gravitational lensing , Manchester, UK | 03/2024 |
| Lensing at different scales, conference, Chicago | 07/2023 |
| * Self-interacting dark matter , workshop, ITA | 06/2023 |
| IAU symposion on strong lensing, conference, Puglia | 06/2023 |
| TDCOSMO collaboration meeting, EPFL, SUI | 06/2022 |

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| * Line of sight workshop , Montpellier, FRA | 06/2022 |
| †DESC collaboration meeting (Meeting Contact Person) | 02/2022 |
| *† Cosmology with the Roman Space Telescope (panelist) | 01/2022 |
| †DESC collaboration meeting, (session facilitator) | 07/2021 |
| *† 16th Marcel Grossmann meeting | 07/2021 |
| †Cosmology from home 2021 (talk and session co-host) | 07/2021 |
| †PPC 2021, Oklahoma, USA | 5/2021 |
| †Streams 2021, Flatiron Institute, USA | 2/2021 |
| †Time-domain cosmology with strong lenses, IPMU (panelist) | 1/2021 |
| C†Cosmology from home 2020 (talk and session host) | 08/2020 |
| †Galaxy-halo connection 2020, UCSC | 08/2020 |
| †H ₀ 2020, ESO conference | 06/2020 |
| * Near-Far workshop , Nappa, USA | 12/2019 |
| Bay Area local group meeting, Stanford, USA | 11/2019 |
| * LSST Dark Matter workshop , University of Chicago, USA | 06/2019 |
| STRIDES/H0LiCOW workshop, DARK Copenhagen, Denmark | 06/2019 |
| Key Science Projects with US-extremely large telescopes, Tucson, USA | 11/2018 |
| * The future of H₀: Crisis or Concordance? , Chicago, USA | 10/2018 |
| * Shedding Light on the Dark Universe with ELT's , Trieste, IT | 07/2018 |
| * Dark Matter workshop , Madrid, ESP | 06/2018 |
| * MIAPP distance ladder workshop , Garching, GER | 06/2018 |
| * Lensing substructure modelling challenge , Reykjavik, ISL | 06/2018 |
| STRIDES/H0LiCOW workshop, UCLA, USA | 05/2018 |
| Shedding Light on the Dark Universe with ELT's, UCLA, USA | 04/2018 |
| Pacific coast gravity meeting, Caltech, USA | 03/2018 |
| * Dark Matter@SoCal , Caltech, USA | 08/2017 |
| STRIDES/H0LiCOW workshop, MPA Garching, GER | 06/2017 |
| Aosta strong lensing meeting, Cogne, IT | 06/2017 |
| Dark Energy Survey Collaboration meeting, SLAC, USA | 05/2016 |
| STRIDES/H0LiCOW workshop, UCLA, USA | 05/2016 |
| * Dark Matter@ETH workshop , ETH Zurich, SUI | 02/2016 |
| Dark Energy Survey Collaboration meeting, Madrid, SPN | 10/2015 |
| Dark Energy Survey Collaboration meeting, Ann Arbor, USA | 05/2015 |
| STRIDES/H0LiCOW workshop, EPFL, SUI | 04/2015 |
| Swiss Cosmology Days, Geneva, SUI | 02/2015 |
| STRIDES workshop, Cambridge, UK | 10/2014 |
| Santa Cruz Galaxy Evolution workshop, USA | 08/2014 |
| EWASS, Geneva, SUI | 06/2014 |
| Swiss Cosmology Day, Bern, SUI | 02/2013 |

SEMINARS & DEPARTEMENTAL TALKS [*invited, †virtual]

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| *† Colloquium , UPenn, USA | 11/2023 |
| *† Colloquium , UIUC, USA | 09/2023 |
| *† IPMU seminar , JAP | 11/2022 |
| *† HEP/Astro results forum , USA | 10/2022 |
| * Physics Colloquium , UC Merced, USA | 9/2022 |

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| *Seminar, IST Austria, AUT | 3/2022 |
| *†Physics Colloquium, Birmingham University, UK | 3/2022 |
| *†Astrophysics Colloquium, SUNY Stony Brook, USA | 2/2022 |
| *†OKC colloquia, Oskar Klein Center, Stockholm, SWE | 1/2022 |
| †Cosmology Journal Club, University of Cambridge, UK | 12/2021 |
| †Galactic dynamics group meeting, U Toronto, CAN | 12/2021 |
| *†AEC seminar, University of Bern, SUI | 9/2021 |
| *†ARC seminar, University of KwaZulu-Natal, SA | 9/2021 |
| *†Astrophysics seminar, JPL, USA | 9/2021 |
| *†Cosmology/HEP seminar, Imperial College London, UK | 3/2021 |
| *†Colloquium, University of Utah, USA | 2/2021 |
| *†Newton 1665 seminar, Pisa, IT | 11/2020 |
| †CosmoClub, ETH Zurich, SUI | 10/2020 |
| *†Journal club, IAP Sorbonne University, Paris, FRA | 10/2020 |
| *†Cosmology Group meeting, Princeton University, Princeton, USA | 08/2020 |
| *†Survey Group meeting, University of Chicago, Chicago, USA | 07/2020 |
| *†Cosmology Seminar, CERN, SUI, | 07/2020 |
| *†Cosmology Talks, youtube, | 07/2020 |
| *†Astrophysics Colloquium, Stanford, USA | 07/2020 |
| †Seminar, IPMU, Tokyo, JPN | 04/2020 |
| Seminar, Stanford University, Stanford, USA | 02/2020 |
| Seminar, UC Santa Cruz, Santa Cruz, USA | 02/2020 |
| Seminar, University of Sussex, Brighton, UK | 01/2020 |
| Seminar, University College London, London, UK | 01/2020 |
| Seminar, Portsmouth University, Portsmouth, UK | 01/2020 |
| *ML and Stats Forum, Berkeley, USA | 12/2019 |
| Strong Lensing Jamboree, Stanford, USA | 08/2019 |
| *Cosmology Seminar, FermiLab, USA | 07/2019 |
| Seminar, University of Heidelberg, GER | 06/2019 |
| Seminar, INAF, Rome, IT | 06/2019 |
| *Astronomy Colloquium, UCLA, Los Angeles, USA | 03/2019 |
| *Seminar, JPL, Pasadena, USA | 03/2019 |
| Lunch talk, Carnegie Observatories, Pasadena, USA | 03/2019 |
| *ITC Colloquium, CfA, Harvard, USA | 03/2019 |
| Survey Group meeting, University of Chicago, Chicago, USA | 02/2019 |
| *Physics Colloquium, California State University, Los Angeles, USA | 02/2019 |
| *Statistics Colloquium, University of Notre Dame, USA | 09/2018 |
| Cosmology Seminar, MPA, Garching, GER | 06/2018 |
| Lunch seminar, UC Santa Barbara, USA | 06/2018 |
| *Colloquium, UC Davis, USA | 04/2018 |
| Galaxy lunch seminar, Yale, New Heaven, USA | 01/2018 |
| IPAC lunch seminar, Caltech, USA | 10/2017 |
| *Colloquium, UC Irvine, USA | 10/2017 |
| Research seminar, UCLA, USA | 02/2017 |
| *AMP colloquium, ETH Zurich, SUI | 11/2016 |
| Research seminar, IfA ETH Zurich, SUI | 10/2016 |
| Seminar, Tata Institute for Fundamental Research, Mumbai, IND | 07/2015 |
| Research seminar, IfA ETH Zurich, SUI | 03/2015 |

Research seminar, IfA ETH Zurich, SUI 09/2013

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| PUBLIC | Public lecture, Stony Brook Astronomy Open Night, Stony Brook | 04/2023 |
| OUTREACH | Public lecture, KIPAC public lecture, Stanford | 12/2022 |
| | YouTube talk, Haus der Astronomy, Germany (virtual) | 08/2022 |
| | Invited talk, San Francisco Amateur Astronomers, San Francisco (virtual) | 08/2020 |
| | Public lecture, KIPAC public lecture, (virtual) | 07/2020 |
| | Invited talk, San Mateo Astronomical Society, San Mateo | 11/2019 |
| | Demonstrator, SLAC Community Day, SLAC/Stanford | 10/2019 |
| | Invited talk, Astronomy on Tap, San Francisco | 09/2019 |
| | Invited talk, Orange County Astronomers, Orange | 07/2019 |
| | Invited talk, Kern Astronomical Society, Backersfield | 04/2019 |
| | Planetarium show, Astronomy live! program, UCLA | 2018 |
| | Invited talk, Ventura Astronomical society | 01/2018 |
| | Invited talk, Astronomyical Society Aarau | 04/2016 |
| | Invited talk, Urania Sternwarte Zürich | 03/2016 |
| | Invited talk, Treffpunkt Science City, ETH Zürich | 03/2015 |
| | Public tours/telescope visits, ETH Zürich | 2014 - 2016 |

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| TECHNICAL SKILLS | software development, High Performance Computing, Python (professional), C++ (basic), L ^A T _E X |
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- OVERVIEW Publications: 89 (14 first-author) published, 5 submitted
 Bibliometrics: 6000+ total citations, h -index of 35 (according to NASA ADS)
 Five most important publications highlighted by ***
- SUBMITTED
 JOURNAL
 PUBLICATIONS
5. A. Çağan Şengül, **S. Birrer**, P. Natarajan, C. Dvorkin, *Detecting Low-Mass Perturbors in Cluster Lenses using Curved Arc Bases*, submitted to journal, (2023), arXiv:2303.14786
 4. R. E. Keeley, A. M. Nierenberg, D. Gilman, **S. Birrer**, A. Benson, T. Treu, *Pushing the Limits of Detectability: Mixed Dark Matter from Strong Gravitational Lenses*, submitted to journal, (2023), arXiv:2301.07265
 3. J.-W. Park, **S. Birrer**, M. Ueland, M. Cranmer, A. Agnello, S. Wagner-Carena, P. J. Marshall, A. Roodman, the LSST Dark Energy Science Collaboration, *Hierarchical Inference of the Lensing Convergence from Photometric Catalogs with Bayesian Graph Neural Networks*, submitted to journal, (2022), arXiv:2211.07807
 2. E. Zaborowski, A. Drlica-Wagner, F. Ashmead, J. F. Wu, R. Morgan, C. R. Bom, A. J. Shajib, **S. Birrer**, et al., *Identification of Galaxy-Galaxy Strong Lens Candidates in the DECam Local Volume Exploration Survey Using Machine Learning*, submitted to journal, (2022), arXiv:2210.10802
 1. L. de la Bella, A. Amara, **S. Birrer**, W. Hartley, P. Sudek, *Quenching and Galaxy Demographics*, submitted to journal, (2021), arXiv:2110.02418
- REFEREED
 JOURNAL
 PUBLICATIONS
- First authored*
14. **S. Birrer** S. Dhawan, A. Shajib, *The Hubble Constant from Strongly Lensed Supernovae with Standardizable Magnifications*, The Astrophysical Journal, Volume 924, Issue 1, id.2, 21 pp., (2022), arXiv:2107.12385
 13. **S. Birrer**, *Gravitational lensing formalism in a curved arc basis: A continuous description of observables and degeneracies from the weak to the strong lensing regime*, The Astrophysical Journal, Volume 919, Issue 1, id.38, 20 pp. (2021), arXiv:2104.09522
 12. **S. Birrer**, A. Shajib, D. Gilman, A. Galan, J. Aalbers, M. Millon, R. Morgan, G. Pagano, J.-W. Park, L. Teodori, N. Tessore, M. Ueland, L. Van de Vyvere, S. Wagner-Carena, E. Wempe, L. Yang, X. Ding, T. Schmidt, D. Sluse, M. Zhang, A. Amara, *lenstronomy II: A gravitational lensing software ecosystem*, Journal of Open Source Software, vol. 6, issue 62, id. 3283 (2021), arXiv:2106.05976
 11. **S. Birrer** & T. Treu, *TDCOSMO V: strategies for precise and accurate measurements of the Hubble constant with strong lensing*, Astronomy & Astrophysics, Volume 649, id.A61, 6 pp., (2021), arXiv:2008.06157

10. *** **S. Birrer**, A. J. Shajib, A. Galan, M. Millon, T. Treu et al. *TDCOSMO IV: Hierarchical time-delay cosmography – joint inference of the Hubble constant and galaxy density profiles*, Astronomy & Astrophysics, Volume 643, id.A165, 40 pp. (2020), arXiv:2007.02941
9. **S. Birrer** and T. Treu *Astrometric requirements for strong lensing time-delay cosmography*, Monthly Notices of the Royal Astronomical Society, Volume 489, Issue 2, p.2097-2103 (2019), arXiv:1904.10965
8. *** **S. Birrer**, T. Treu, C. E. Rusu, et al. *H0LiCOW - IX. Cosmographic analysis of the doubly imaged quasar SDSS 1206+4332 and a new measurement of the Hubble constant*, Monthly Notices of the Royal Astronomical Society, Volume 484, Issue 4, p.4726-4753 (2019), arXiv:1809.01274
7. *** **S. Birrer** and A. Amara, *Lenstronomy: multi-purpose gravitational lens modelling software package*, Physics of the Dark Universe, Volume 22, p. 189-201 (2018), arXiv:1803.09746
6. **S. Birrer**, A. Refregier and A. Amara, *Cosmic Shear with Einstein Rings*, The Astrophysical Journal Letters, Volume 852, Issue 1, article id. L14, 4 pp. (2018), arXiv:1710.01303
5. **S. Birrer**, A. Amara and A. Refregier, *Lensing substructure quantification in RXJ1131-1231: a 2 keV lower bound on dark matter thermal relic mass*, Journal of Cosmology and Astroparticle Physics, Issue 05, article id. 037 (2017), arXiv:1702.00009
4. **S. Birrer**, C. Welschen, A. Amara and A. Refregier, *Line-of-sight effects in strong lensing: putting theory into practice*, Journal of Cosmology and Astroparticle Physics, Issue 04, article id. 049 (2017), arXiv:1610.01599
3. **S. Birrer**, A. Amara and A. Refregier, *The mass-sheet degeneracy and time-delay cosmography: analysis of the strong lens RXJ1131-1231*, Journal of Cosmology and Astroparticle Physics, Issue 08, article id. 020 (2016), arXiv:1511.03662
2. **S. Birrer**, A. Amara and A. Refregier, *Gravitational Lens Modeling with Basis Sets*, The Astrophysical Journal, Volume 813, Issue 2, article id. 102, 13 pp. (2015), arXiv:1504.07629
1. **S. Birrer**, S. Lilly, A. Amara, A. Paranjape and A. Refregier, *A Simple Model Linking Galaxy and Dark Matter Evolution*, The Astrophysical Journal, Volume 793, Issue 1, article id. 12, 24 pp. (2014), arXiv:1401.3162

Significant contributions as supervisor or co-supervisor

21. T. Schmidt, T. Treu, **S. Birrer**, et al., *STRIDES: automated uniform models for 30 quadruply imaged quasars*, Monthly Notices of the Royal Astronomical Society, Volume 518, Issue 1, pp. (2023), arXiv:2206.04696
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