

## Daniel A. Gilman

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CONTACT INFORMATION	Knudsen Hall 3-145R Department of Physics and Astronomy University of California, Los Angeles Los Angeles, CA 90095 USA	<i>phone:</i> (757) 814-5869 <i>E-mail:</i> gilmanda@ucla.edu <i>web:</i> www.astro.ucla.edu/~gilmanda
RESEARCH INTERESTS	Gravitational lensing by galaxies as a probe of the nature and origins of dark matter	
EDUCATION	<b>University of California, Los Angeles</b> , Los Angeles, California USA Ph.D. Candidate, Physics (expected graduation date: May 2020) <ul style="list-style-type: none"><li>• Dissertation Topic: “Investigating the nature and origins of dark matter with flux ratio statistics in gravitational lenses”</li><li>• Advisor: Tommaso Treu</li></ul> M.S., Physics, September 2016  <b>James Madison University</b> , Harrisonburg, Virginia USA B.S., Physics <i>cum laude</i> , May, 2014	
HONORS AND AWARDS	Phi Beta Kappa, James Madison University, 2014  Distinguished undergraduate research award, James Madison University, 2014	
PUBLICATIONS	<b>Daniel Gilman</b> , Xiaolong Du, Andrew Benson, Simon Birrer, Anna Nierenberg, and Tommaso Treu <i>Constraints on the mass-concentration relation of cold dark matter halos with 11 strong gravitational lenses</i> , submitted to MNRAS (September 2019), arXiv:1909.02573  <b>Daniel Gilman</b> , Simon Birrer, Anna Nierenberg, Tommaso Treu, Xiaolong Du, and Andrew Benson <i>Warm dark matter chills out: constraints on the halo mass function and the free-streaming length of dark matter with 8 quadruple-image strong gravitational lenses</i> , submitted to MNRAS (September 2019), arXiv:1908.06983  Anna Nierenberg, <b>Daniel Gilman</b> , et al. <i>Double dark matter vision: twice the number of compact-source lenses with narrow-line lensing and the WFC3 Grism</i> , submitted to MNRAS (August 2019), arXiv:1908.06344  Vivian Bonvin, ... (+ 18 authors), <b>Daniel Gilman</b> , et al. <i>COSMOGRAIL. XVIII. time delays of the quadruply lensed quasar WFI2033-4723</i> , Astronomy and Astrophysics 629, A97 (2019)  <b>Daniel Gilman</b> , Simon Birrer, Tommaso Treu, Anna Nierenberg, and Andrew Benson <i>Probing dark matter structure down to <math>10^7</math> solar masses: flux ratio statistics in gravitational lenses with line of sight halos</i> , MNRAS, 1618 (2019)  <b>Daniel Gilman</b> , Simon Birrer, Tommaso Treu, Charles R. Keeton, Anna Nierenberg <i>Probing the nature of dark matter by forward modelling flux ratios in strong gravitational lenses</i> , MNRAS 481, 819 (2018)  Vivian Bonvin, ... (+ 10 authors), <b>Daniel Gilman</b> , et al. <i>COSMOGRAIL. XVII. Time delays for the quadruply imaged quasar PG 1115+080</i> , Astronomy and	

Astrophysics 616, A183 (2018)

Xuheng, Ding, ... (+9 authors), **Daniel Gilman**, et al.  
*Time Delay Lens Modeling Challenge: I. Experimental Design*, arXiv:1801.01506 (2018)

Frederic Courbin, ... (+ 16 authors), **Daniel Gilman**, et al.  
*COSMOGRAIL: the COSmological MONitoring of GRAvItational Lenses. XVI. Time delays for the quadruply imaged quasar DES J0408-5354 with high-cadence photometric monitoring*, Astronomy and Astrophysics 609, A71 (2018)

**Daniel Gilman**, Adriano Agnello, Tommaso Treu, Charles R. Keeton, Anna Nierenberg  
*Strong lensing signatures of luminous structure and substructure in early-type galaxies*, MNRAS 467, 3970 (2017)

Francis-Yan Cyr-Racine, Leonidas Moustakas, Charles R. Keeton, Kris Sigurdson, **Daniel Gilman**  
*Dark census: Statistically detecting the satellite populations of distant galaxies*, Phys. Rev. D. 94, 043505 (2016)

CONFERENCE  
PRESENTATIONS  
[\*invited]

Matera Oscura: Cosmology and Dark Matter Within Galaxies and Clusters; Matera, Italy; September 2019

TMT Science Forum, Pasadena USA; December 2018

The Universe as a Telescope: probing the cosmos at all scales with strong lensing, Milan, Italy; September 2018

**\*Identification of Dark Matter**, Providence, USA; July 2018

The Small Scale Structure of Cold Dark Matter, Santa Barbara, USA; April 2018 (*poster*)

Shedding Light on the Dark Universe with Extremely Large Telescopes, Los Angeles, USA; April 2018

UCLA Dark Matter Symposium, Los Angeles, USA; February 2018 (*poster*)

Aosta Strong Lensing Meeting, Cogne, Italy; August 2017

WORKSHOPS AND  
SEMINARS  
[\*invited]

Institute of Astronomy Lunch Seminar at the University of Cambridge, Cambridge, UK; September 2019

LSST Dark Matter Workshop, Chicago, USA; August 2019

Carnegie Observatories Astrophysics Seminar, Pasadena, USA; May 2019

**\*Substructure Lensing with Galacticus**, Columbus, USA; August 2018

**\*Bhaumik Luncheon Young Scientists Seminar**, Los Angeles, USA; May 2018

STRIDES/HOLICOW Workshop, Los Angeles, USA; May 2018

STRIDES/HOLICOW Workshop, Los Angeles, USA; May 2017

OBSERVING  
EXPERIENCE

ESO/MPG 2.2m telescope, La Silla Observatory, Chile (30 nights total)

*Experience with the three instruments on the 2.2m (WFI, FEROS, GROND)*

RESEARCH AND  
PROFESSIONAL  
EXPERIENCE

PhD Research, Los Angeles, USA (September 2015-present)

Supervisors: Prof. Tommaso Treu (advisor), Dr. Simon Birrer

*Using flux ratio statistics from quadruply imaged quasars to investigate the nature and origins of dark matter.*

NASA Undergraduate Internship Program, Pasadena, USA

(September-December 2013, and May-August 2014)

Supervisors: Dr. Francis-Yan Cyr-Racine, Dr. Leonidas Moustakas

*Using gravitational lensing to probe the nature of dark matter.*

Ad Astra Rocket Company, Houston, USA (May-August 2013)

Supervisor: Dr. Franklin Chang-Diaz

*Optimization of mission parameters for trips to Mars using the Variable Specific Impulse Magneto-Plasma Rocket (VASIMR) system in development by Ad Astra.*

James Madison University, Harrisonburg, USA (May 2012 - May 2013)

Supervisor: Dr. Sean Scully

*Using gamma spectra from blazars to constrain the opacity of the universe to gamma rays.*

TECHNICAL  
SKILLS

**Programming languages:**

- Python (advanced)
- MATLAB (basic)
- C++ (basic)

**Probability and Statistics:**

- Bayesian inference methods, including likelihood-free inference techniques
- Cluster computing

LANGUAGES

Fluent in Spanish