

# Johannes Ulf Lange

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## RESEARCH INTERESTS

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Galaxy-Halo Connection, Galaxy Formation Theory, Cosmology, Large-Scale Structure, Statistical Methods and Machine Learning

## EDUCATION

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<b>Yale University</b> M.Sc., M.Phil, Ph.D. Candidate in Astronomy	08/2014 – present
<b>Ruprecht-Karls-Universität Heidelberg</b> Master of Science in Physics	09/2012 – 08/2014
<b>Freie Universität Berlin</b> Bachelor of Science in Physics	10/2009 – 08/2012

## RESEARCH

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<b>Yale University</b> Graduate Student Researcher The Galaxy-Halo Connection Advisor: Frank van den Bosch	08/2014 – present
<b>Shanghai Jiao Tong University</b> Visiting Scholar The non-linear Galaxy Clustering and Lensing in BOSS Advisor: Xiaohu Yang	05/2018 – 07/2018
<b>Kavli Institute for Theoretical Physics</b> KITP Graduate Fellow The Galaxy-Halo Connection	01/2017 – 07/2017
<b>The Chinese University of Hong Kong</b> Postgraduate Research Exchange Program Dark Matter Annihilation and the Cosmic Gamma-Ray Background Advisor: Ming Chung Chu	08/2013 – 07/2014
<b>German Electron Synchrotron (DESY)</b> Bachelor Thesis The average GeV-band Emission from Gamma-Ray Bursts Advisor: Martin Pohl	04/2012 – 07/2012
<b>University of California, Santa Barbara</b> Undergraduate Research Search for a Higgs Boson in the Decay Channel $H \rightarrow Z\gamma$ Advisor: Claudio Campagnari	09/2011 – 03/2012

## PUBLICATIONS

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- [10] **J. U. Lange**, F. C. van den Bosch, A. R. Zentner, K. Wang, and A. Villarreal. “Maturing Satellite Kinematics into a Competitive Probe of the Galaxy-Halo Connection”. submitted to MNRAS.
- [9] D. Campbell, F. C. van den Bosch, N. Padmanabhan, Y.-Y. Mao, A. R. Zentner, **J. U. Lange**, F. Jiang, and A. Villarreal. “The galaxy clustering crisis in abundance matching”. In: *MNRAS* 477 (June 2018), pp. 359–383. arXiv: 1705.06347.
- [8] **J. U. Lange**, F. C. van den Bosch, A. Hearin, D. Campbell, A. R. Zentner, A. Villarreal, and Y.-Y. Mao. “Brightest galaxies as halo centre tracers in SDSS DR7”. In: *MNRAS* 473 (Jan. 2018), pp. 2830–2851. arXiv: 1705.05043.
- [7] A. S. Villarreal, A. R. Zentner, Y.-Y. Mao, C. W. Purcell, F. C. van den Bosch, B. Diemer, **J. U. Lange**, K. Wang, and D. Campbell. “The inimitable nature of assembly bias: the impact of halo definition on assembly bias”. In: *MNRAS* 472 (Nov. 2017), pp. 1088–1105. arXiv: 1705.04327.
- [6] E. J. Nelson et al, including **J. U. Lange**. “Where Stars Form: Inside-out Growth and Coherent Star Formation from HST H $\alpha$  Maps of 3200 Galaxies across the Main Sequence at  $0.7 < z < 1.5$ ”. In: *ApJ* 828, 27 (Sept. 2016), p. 27. arXiv: 1507.03999.
- [5] I. G. Momcheva et al, including **J. U. Lange**. “The 3D-HST Survey: Hubble Space Telescope WFC3/G141 Grism Spectra, Redshifts, and Emission Line Measurements for  $\sim 100,000$  Galaxies”. In: *ApJS* 225, 27 (Aug. 2016), p. 27. arXiv: 1510.02106.
- [4] A. R. Zentner, A. Hearin, F. C. van den Bosch, **J. U. Lange**, and A. Villarreal. “Constraints on Assembly Bias from Galaxy Clustering”. In: *ArXiv e-prints* (June 2016). arXiv: 1606.07817.
- [3] **J. U. Lange**, P. G. van Dokkum, I. G. Momcheva, E. J. Nelson, J. Leja, G. Brammer, K. E. Whitaker, and M. Franx. “Evidence for Non-stellar Rest-frame Near-IR Emission Associated with Increased Star Formation in Galaxies at  $z \sim 1$ ”. In: *ApJL* 819, L4 (Mar. 2016), p. L4. arXiv: 1602.05967.
- [2] **J. U. Lange** and M.-C. Chu. “Can galactic dark matter substructure contribute to the cosmic gamma-ray anisotropy?” In: *MNRAS* 447 (Feb. 2015), pp. 939–947. arXiv: 1412.5749.
- [1] **J. Lange** and M. Pohl. “The average GeV-band emission from gamma-ray bursts”. In: *A&A* 551, A89 (Mar. 2013), A89. arXiv: 1301.2914 [astro-ph.HE].

## TALKS

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<b>BCCP Seminar</b> (invited) University of California, Berkeley	09/2018
<b>CosmoClub</b> University of California, Santa Cruz	09/2018
<b>SUGAR-RUSH Conference</b> Shanghai Jiao Tong University	06/2018
<b>KIPAC Tea Talk</b> SLAC National Accelerator Laboratory	03/2018
<b>Astronomy Seminar</b> University of California, Riverside	03/2018

<b>Galaxy Coffee</b> Max Planck Institute for Astronomy	01/2018
<b>The Galaxy-Halo Connection Across Cosmic Time</b> (invited) Kavli Institute for Theoretical Physics	07/2017
<b>Quantifying and Understanding the Galaxy-Halo Connection</b> Kavli Institute for Theoretical Physics	05/2017
<b>Astroparticle Physics Seminar</b> German Electron Synchrotron (DESY)	07/2014
<b>Conference of the Physical Society of Hong Kong</b> Hong Kong Baptist University	06/2014
<b>IAS Workshop on New Perspectives in Cosmology</b> Hong Kong University of Science and Technology	05/2014

## TEACHING

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- Astrostatistics and Data Mining, Lab Leader, Yale University, Spring 2018
- Introduction to Astronomical Observing, Lab TA, Yale University, Fall 2017
- Astrostatistics and Data Mining, Lab Leader, Yale University, Spring 2016
- Introduction to Cosmology, Section Leader, Yale University, Fall 2015
- Gravity, Astrophysics, and Cosmology, Grader, Yale University, Spring 2015
- Introduction to Astronomical Observing, Lab TA, Yale University, Fall 2014

## OUTREACH

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- Talk at Leitner Family Observatory & Planetarium, New Haven, CT, February 2018
- Talk at Open Labs Science Cafe Talk, Yale University, New Haven, CT, October 2017
- Member of Open Labs, Yale University, New Haven, CT, since 2016
- Tutor at New Haven Reads, New Haven, CT, 2015 - 2018
- Member of UCSB Physics Circus, UC Santa Barbara, Santa Barbara, CA, 2012

## SKILLS

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- Programming Languages – C/C++, Python, Cython, Java
- Scientific Applications – NumPy, SciPy, matplotlib, LaTeX, git
- Languages – German (native), English (fluent), Chinese (basic)

## HONORS AND AWARDS

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- KITP Graduate Fellowship Program
- Henry A. Smith Fellowship, Yale University
- DAAD (German Academic Exchange Service) Scholarship
- Deutschlandstipendium National Scholarship Program
- Ernst Reuter Scholarship, Free University of Berlin
- Dean's List, University of California, Santa Barbara