

Marie Wingyee Lau

PERSONAL AND CONTACT INFO	Emails: lwymarie@ucolick.org, lwymarie@gmail.com Address: Dept of Astronomy, University of California, Santa Cruz, CA 95064 Homepage: http://lwymarie.github.io Languages: IDL, Python, Mathematica, English, Chinese Citizenship: Hong Kong SAR
RESEARCH INTERESTS	Circumgalactic medium, quasars, active galactic nuclei, galaxy formation, supermassive black holes, tidal disruption events, stellar archeology, chemical abundances, quasar absorption lines, optical, near-infrared, and ultraviolet spectroscopy
EDUCATION	University of California, Santa Cruz , 2012 - Present <ul style="list-style-type: none">• Ph.D. Astronomy in progress• Thesis advisor: Prof. J. Xavier Prochaska• M.S. 2015 The Chinese University of Hong Kong , 2008 - 2012 <ul style="list-style-type: none">• B.S. Physics, with honors University of California, Santa Barbara , Winter - Spring 2011 <ul style="list-style-type: none">• Educational Abroad Program Reciprocity University of California, Berkeley , Summer 2009 <ul style="list-style-type: none">• Summer Sessions
GRANTS, HONORS AND AWARDS	<ul style="list-style-type: none">• Hubble Space Telescope Cycle-25, title: Observing AGN Feedback Down-the-Barrel Using Associated Absorbers at $z \lesssim 1.5$, ID: 15034, Space Telescope Science Institute, 2017• NEXSI Fellowship, UC Santa Cruz, 2012• Regents' Fellowship, UC Santa Cruz, 2012• Student speech representative of the United College scholarship presentation ceremony, The Chinese University of Hong Kong, 2012• 9 scholarships totaling the full tuition, The Chinese University of Hong Kong, 2008 - 2012• Summer Undergraduate Research Fellowship, California Institute of Technology, 2011
TELESCOPE PROPOSALS AND OBSERVING	<ul style="list-style-type: none">• Lick Observatory Shane/Kast: <i>Late-time Optical Spectral Signatures of Tidal Disruption Candidates</i>, Principal Investigator, 6 nights in 2017A, 12 nights in 2016A, 4 nights in 2015A• Lick Observatory Shane/Kast: <i>To Explore Emission Lines on Large Spatial Scales of Red Galaxies Hosting Intermediate-mass Black Holes</i>, co-Investigator, 6 nights in 2017A• Lick Observatory Shane/Kast: <i>The HI Gas of 2175 Å Absorbers</i>, co-Investigator, 5 nights in 2015B, 5 nights in 2015A, 5 nights in 2014B, 5 nights in 2014A

- Keck Observatory Keck I/LRIS: *Resolving the Small-scale Structure of the Circumgalactic Medium*, co-Investigator, 2 nights in 2015B, 3 nights in 2015A, 2 nights in 2014B
- Keck Observatory Keck II/ESI: *Circumgalactic Medium Studies at $z \sim 2$ with Close Quasar Pairs*, co-Investigator, 2 nights in 2014B, 1 night in 2014A, 1 night in 2013B
- Lead observer of ≈ 50 nights on medium and large telescopes

PUBLICATIONS

- Bose, S., & Dong, S., et al. including **Lau, M. W.**, *Gaia17biu/SN 2017egm: The Closest Hydrogen-poor Superluminous Supernova To Date is in a “Normal”, Massive, Metal-rich Spiral Galaxy*, submitted to The Astrophysical Journal, arXiv:1708.00864
- **Lau, M. W.**, Prochaska, J. X., & Hennawi, J. F., *Quasars Probing Quasars. IX. The Kinematics Of the Circumgalactic Medium Surrounding $z \sim 2$ Quasars*, submitted to The Astrophysical Journal, arXiv:1705.03476
- Mathur, S., et al. including **Lau, M. W.**, *Space Telescope and Optical Reverberation Mapping Project. VII. Understanding the UV anomaly in NGC 5548 with X-Ray Spectroscopy*, The Astrophysical Journal, Volume 846, Issue 1, article id. 55 (2017)
- Pei, L, et al. including **Lau, M. W.**, *Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic campaign and Emission-line Analysis for NGC 5548*, The Astrophysical Journal, Volume 837, Issue 2, article id. 131 (2017)
- **Lau, M. W.**, Prochaska, J. X., & Hennawi, J. F., *Quasars Probing Quasars. VIII. The Physical Properties of the Cool Circumgalactic Medium Surrounding $z \sim 2$ –3 Massive Galaxies Hosting Quasars*, The Astrophysical Journal Supplement Series, Volume 226, Issue 2, article id. 25 (2016)
- Cai, Z., Fan, X., Peirani, S., Bian, F., Frye, B., McGreer, I., Prochaska, J. X., **Lau, M. W.**, Tejos, N., Ho, S., & Schneider, D. P., *MApping the Most Massive Overdensities Through Hydrogen (MAMMOTH) I: Methodology*, The Astrophysical Journal, Volume 833, Issue 2, article id. 135 (2016)
- Rubin, K. H. R., Hennawi, J. F., Prochaska, J. X., Simcoe, R. A., Myers, A., & **Lau, M. W.**, *Dissecting the Gaseous Halos of $z \sim 2$ Damped Ly α Systems with Close Quasar Pairs*, The Astrophysical Journal, Volume 808, Issue 1, article id. 38 (2015)
- Prochaska, J. X., **Lau, M. W.**, & Hennawi, J. F., *Quasars Probing Quasars. VII. The Pinnacle of the Cool Circumgalactic medium Surrounds Massive $z \sim 2$ Galaxies*, The Astrophysical Journal, Volume 796, Issue 2, article id. 140 (2014)
- Prochaska, J. X., Hennawi, J. F., Lee, K.-G., Cantalupo, S., Bovy, J., Djorgovski, S. G., Ellison, S. L., **Lau, M. W.**, Martin, C. L., Myers, A., Rubin, K. H. R., & Simcoe, R. A., *Quasars Probing Quasars. VI. Excess HI Absorption within One Proper Mpc of $z \sim 2$ Quasars*, The Astrophysical Journal, Volume 776, Issue 2, article id. 136 (2013)
- Jiang, Y., Aumann, H. H, **Lau, M. W.**, & Yung Y. L., *Climate Change Sensitivity Evaluation from AIRS and IRIS measurements*, Proceedings of the SPIE, Volume 8153, id. 81531Z (2011)

WORK IN
PROGRESS

- **Lau, M. W.**, Cheng, E., Smith, G. H., & Chen, B., *Na and O Anomalies in Globular Clusters: Internal Mixing or Primordial Origin?*
- **Lau, M. W.**, Finlator, K. M., & Oh, S. P. et al., *Hydrodynamic Simulations of Quenching of Central versus Satellite Galaxies at $z \sim 0.1$*
- **Lau, M. W.**, Dai, L., Guillochon, J., & Ramirez-Ruiz, E., *Late-time Optical Spectral Signatures of Tidal Disruption Events: PTF-09ge*

CONTRIBUTED
TALKS

- Astrophysics seminar, UC Irvine, 2017
- Science Lunch Meeting, Caltech, 2017
- INPA seminar, Lawrence Berkeley National Laboratory, 2017
- Department Lunch Talk, UC Berkeley, 2017
- Keck Science Meeting, Santa Cruz, 2017
- Thirty Meter Telescope Future Leaders Symposium (poster), UC Santa Cruz, 2017
- Santa Cruz Galaxy Formation Workshop, UC Santa Cruz, 2017
- Inter[Stellar and Galactic] Medium Program of Studies meeting, UC Santa Cruz, 2017
- Inter[Stellar and Galactic] Medium Program of Studies Winter Writing Workshop, UC Santa Cruz, 2016
- Unveiling the AGN - Galaxy Evolution Connection (poster), Universidad de Concepción, 2015
- Santa Cruz Galaxy Formation Workshop, UC Santa Cruz, 2014
- Intergalactic Matters, Max-Planck-Institut für Astronomie, 2014
- Friday Lunchtime Astrophysics Seminar Hour, UC Santa Cruz, 2014
- GAstronomy lunch talk, UC Santa Barbara, 2011

SERVICE

- Proposal reviewer, Hubble Space Telescope Cycle 25 Mid-cycle
- Colloquium co-organizer, UC Santa Cruz, 2017
- Referee for the Monthly Notices of the Royal Astronomical Society, 2015
- Organizer of prospective graduate student visit, UC Santa Cruz, 2015
- Vice-President and Publication of the United College Student Union Physics Society, The Chinese University of Hong Kong, 2009 - 2011
- Member of the United College Student Union Supervisory Committee, The Chinese University of Hong Kong, 2009 - 2011

ACADEMIC
MEMBERSHIPS

- American Astronomical Society, Junior member

TEACHING,
MENTORING AND
OUTREACH

- Primary Mentor for four high school interns under the Science Internship Program, UC Santa Cruz, 2017, 2016
- Teaching Assistant for California State Summer School for Mathematics and Science (COSMOS), 2017, 2016
- Teaching Assistant for ASTR/PHYS 9B: Introduction to Research in Physics and Astrophysics, UC Santa Cruz, Spring 2017
- Teaching Assistant for ASTR 2: Overview of the Universe, UC Santa Cruz, Winter 2017, Fall 2016, Spring 2016, Winter 2016, Fall 2015
- Mentor for the Siemens Competition in Math, Science & Technology, project titled Surface Compositions of Red Giant Stars in Globular Clusters, 2016

- Teaching Assistant for ASTR 6: The Space-Age Solar System, UC Santa Cruz, Winter 2015
- Teaching Assistant for ASTR 1: Introduction to the Cosmos, UC Santa Cruz, Fall 2012
- Private tutor for high school students in English and Mathematics, 2003 - 2008

RESEARCH EXPERIENCES OUTSIDE OF ASTRONOMY

- Climate change sensitivity evaluation from spaceborne instrument measurements, with Prof. Yuk L. Yung, Caltech
- Determining cloud base and thickness from spaceborne spectroscopic imaging and lidar profiling techniques, with Dr Dong Wu, Goddard Space Flight Center
- Study on the occurrence of high winds and severe gusts during the onset of Northeast monsoon in Hong Kong, Hong Kong Observatory
- Mechanical vibration of thin plates (senior thesis), with Prof. Kenneth Young, The Chinese University of Hong Kong

ACADEMIC REFERENCES

- Prof. J. Xavier Prochaska, UCO/Lick Observatory, UC Santa Cruz, xavier@ucolick.org
- Prof. Graeme Smith, UCO/Lick Observatory, UC Santa Cruz, graeme@ucolick.org
- Prof. Joseph F. Hennawi, UC Santa Barbara, joe@physics.ucsb.edu