

Bomee Lee

CONTACT INFORMATION

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CAREER & EDUCATION

Postdoctoral Researcher at IPAC/Caltech June 2017 - Present
Jr. Specialist at University of California, Santa Barbara June 2016 - April 2017
Ph. D. in Astronomy, University of Massachusetts at Amherst February 2017
Thesis: Intrinsic Characteristics of Galaxies in the Distant Universe: The correlation between galaxy morphology and star formation activity
Advisor: Dr. Mauro Giavalisco
B.S. in Astronomy & Space Science, Kyung Hee University, Korea February 2006

RESEARCH INTERESTS

- Star formation quenching mechanisms of high-redshift galaxies
- Physical properties of high-redshift galaxies having different morphologies
- Star formation histories of high redshift galaxies
- Physics during the Epoch of Reionization
- Nature of dark matter and dark energy, constraining cosmological parameters from weak gravitational lensing
- Members of CANDELS
- Members of Euclid survey

PUBLICATIONS

Galaxy Ellipticity Measurements in the Near-Infrared for Weak lensing
Bomee Lee, Ranga-Ram Chary, Edward L. Wright; 2018, accepted to ApJ

Evidence of Environmental Quenching at Redshift $z \sim 2$
Zhiyuan Ji, Mauro Giavalisco, Christina C. Williams, Sandra M. Faber, Henry C. Ferguson, Yicheng Guo, Teng Liu, **Bomee Lee**; 2018, ApJ, 86, 135

The intrinsic characteristics of galaxies on the SFR-stellar mass plane at $1.2 < z < 4$: I. the correlation between stellar age, central density and position relative to the main sequence
Bomee Lee, Mauro Giavalisco, Katherine Whitaker, Christina, C. Williams, Henry C. Ferguson, Viviana Acquaviva, Anton M. Koeoemoer et al.; 2018, ApJ, 853, 131

Morphology Dependence of Stellar Age in Quenched Galaxies at $z \sim 1.2$: Massive compact galaxies are older than more extended ones
Christina C. Williams, Mauro Giavalisco, Rachel Bezanson, Nico Cappelluti, Paolo Cassata, Teng Liu, **Bomee Lee** et al. ; 2017, ApJ, 838, 94

CANDELS Multiwavelength Catalogs: Source Identification and Photometry in the CANDELS COSMOS survey field

Hooshang Nayyeri, Shoubaneh Hemmati, Bahram Mobasher, Henry C. Ferguson, Asantha Cooray, Guillermo Barro, Sandra M. Faber, Mark E. Dickinson, Anton Koekemoer, Michael Peth, Mara Salvato, Matthew L. N. Ashby, Behnam Darvish, Jennifer L. Donley, Meredith J. Durbin, Steve Finkelstein, Adriano Fontana, Norman Grogin, Kuang-Han Huang, Ali A. Khostovan, Dale Kocevski, **Bomee Lee** et al. ; 2017, ApJS, 228, 7

CANDELS Multiwavelength Catalogs: Source Identification and Photometry in the CANDELS Extended Groth Strip

Mauro Stefanon, Haojing Yan, Bahram Mobasher, Guillermo Barro, Jennifer Donley, Adriano Fontana, Shoubaneh Hemmati, Anton Koekemoer, **Bomee Lee** et al. ; 2017, ApJS, 229, 32

Stellar Masses from the CANDELS survey: The GOODS-S and UDS fields

Paola Santini, Henry C. Ferguson, Adriano Fontana, Bahram Mobasher, Guillermo Barro, Marco Castellano, Steve L. Finkelstein, Andrea Grazian, Li-Ting Hsu, **Bomee Lee** et al. ; 2015, ApJ, 801,17

The Interstellar Medium and Feedback in the Progenitors of the Compact Passive Galaxies at $z \sim 2$

Christina C. Williams, Mauro Giavalisco, **Bomee Lee**, Elena Tundo, Bahram Mobasher, Hooshang Nayyeri, Henry C. Ferguson, Anton Koekemoer, Jonathan R. Trump, Paolo Cassata, Avishai Dekel et al. ; 2015, ApJ, 800, 21

The Progenitors of the Compact Early-type Galaxies at High Redshift

Christina C. Williams, Mauro Giavalisco, Paolo Cassata, Elena Tundo, Tommy Wiklind, Yicheng Guo, **Bomee Lee**, Guillermo Barro, Stijn Wuyts, Eric F. Bell, Christopher J. Conselice, Abishai Dekel, Sandra M. Faber, Henry C. Ferguson et al. ; 2014, ApJ, 780,1

Constraining the Assembly of Normal and Compact Passively Evolving Galaxies from Redshift $z = 3$ to the Present with CANDELS

Paolo Cassata, Mauro Giavalisco, Christina C. Williams, Yicheng Guo, **Bomee Lee**, Alvio Renzini, Henry C. Ferguson, Sandra M. Faber, Guillermo Barro, Daniel H. McIntosh, Yu Lu, Eric F. Bell et al.; 2013, ApJ, 775,106

CANDELS: The Correlation between Galaxy Morphology and Star Formation Activity at $z \sim 2$

Bomee Lee, Mauro Giavalisco, Christina C. Williams, Yicheng Guo, Jennifer Lotz, Arjen Van der Wel, Henry C. Ferguson, Sandra M. Faber, Anton Koekemoer, Norman Grogin, Dale Kocevski, Christopher J. Conselice, Stijn Wuyts, Avishai Dekel, Jeyhan Kartaltepe, Eric F. Bell ; 2013, ApJ, 775, 106

ESA Science Release: Hubble explores the origins of modern galaxies
<http://www.spacetelescope.org/news/heic1315/>

The Variation of Galaxy Morphological Type with Environmental Shear

Jounghun Lee, **Bomee Lee**; 2008, ApJ, 688, 78

The Three-Dimensional Structural Shape of the Gravitational Potential in the Local Group

Bomee Lee, Jounghun Lee; 2008, MNRAS, 389,1001

Successful
Proposals

Co-I: *The Origin of Binary Neutron Stars*

0.5 hours - Keck I/OSIRIS, 2018A

Co-I: *Dwarfs in the Deepest Fields at Noon: Studying Size and Shape of Low-mass Galaxies out to $z \sim 3$ in Five HST Legacy Fields*
Cycle 25 HST Proposal (HST-AR-15025)

**Observing
Experience**

Keck I / OSIRIS, 1 night

The Stratospheric Observatory for Infrared Astronomy (SOFIA) with HAWC+, 1 night

Palomar Hale 200", 2 nights

**CONFERENCES
& MEETINGS**

Galaxy Ellipticity Measurements in the Near-Infrared for Weak lensing
COSPAR 42nd Assembly meeting, Pasadena, CA, *Poster Presentation* July 2018

Euclid Consortium Meeting 2018, Bonn, Germany June 2018

The Art of Measuring Physical Parameters in Galaxies
CANDELS workshop, Riverside, CA April 2018

JWST Proposal Planning Workshop, Pasadena, CA December 2017

The intrinsic characteristics of galaxies on the SFR- M^ diagram: What we learn from the galaxy morphology, stellar age and star-formation activity at $z > 1$?*
IPAC Lunch Seminar, Pasadena, CA, *Invited Talk* October 2017

The 3rd Swinburne-Caltech Workshop: Galaxies and their Halos
Pasadena, CA September 2017

Galaxy evolution on the SFR- M_ diagram at $1.2 < z < 4$*
AAS 227th meeting, KISSIMMEE, FL, *Dissertation Talk* January 2016

Intrinsic characteristics of galaxies in the SFR- M_ diagram at $1 < z < 4$*
CANDELS team meeting, Santa Cruz, CA, *Contributed Talk* July 2015

Intrinsic characteristics of galaxies in the SFR- M_ diagram at $1 < z < 4$*
The SED of High Redshift Galaxies Workshop, Sesto, Italy, *Contributed Talk* January 2015

Improved SED fitting of galaxies at $1 < z < 3.5$
AAS 223th meeting, Washington, DC, *Contributed Talk* January 2014

Intrinsic characteristics of galaxies in the SFR- M_ diagram at $1 < z < 3.5$*
CANDELS team meeting, STScI, Baltimore, MD, *Contributed Talk* August 2014

CANDELS team meeting, Lexington, KY August 2013

CANDELS: The Correlation between galaxy morphology and star formation activity at $z \sim 2$
IAP 75th anniversary conference: the origin of the Hubble sequence, Paris, France, *Poster presentation* June 2013

CANDELS: The Correlation between galaxy morphology and star formation activity at $z \sim 2$

CANDELS team meeting, Santa Cruz, CA, *Contributed Talk* September 2012

The Hubble sequence at $z \sim 2$

AAS 215th meeting, Washington, DC, *Poster presentation* January 2010

Reconstruction the intrinsic triaxial shape of the Virgo Cluster

Korean Astronomical Society (KAS) spring meeting, Korea, *Contributed Talk* April 2007

GRANTS & FELLOWSHIPS

- Irvine Travel Grant, Department Astronomy, Univ. of Massachusetts, 2014
- Research Assistantship, Univ. of Massachusetts, 2009-2016
- Brain Korea 21(BK21) Scholarship, National Research Foundation of Korea, 2006-2007
- Graduate Summa Cum Laude, Kyung Hee University, Korea, 2006
- Semester High Honors 2003-2005

RELEVANT SKILLS & EXPERIENCE

Computing

- *Languages* : IDL, Python, Fortran, use of Unix shell scripts. Basic knowledge of HTML
- *Applications*: SpeedyMC (Acquaviva et al. 2012: Markov Chain Monte Carlo based SED fitting program), IRAF, GALFIT, SExtractor, LaTeX

Teaching Experience

- Teaching Assistant of Astro 101 (Solar System) and Astro 100 (Exploring the Universe) for undergraduates at the University of Massachusetts Amherst in 2008-2009
- Teaching Assistant of Introduction to Modern Cosmology for Astronomy major undergraduates at Seoul National University in 2007

UMASS departmental involvement

- Graduate Student Mentor for the summer undergraduate student internship
- New Graduate student recruiting committee

Outreaches

- Volunteer for Exploring Your Universe at UCLA in 2017

REFERENCES

Dr. Mauro Giavalisco
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Dr. Viviana Acquaviva
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