QING LIU

Curriculum Vitae ⋄ updated: Nov 30th 2017

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EDUCATION

University of Science and Technology of China (USTC)   *September 2014 - Present*

Undergraduate, Department of Astronomy, School of Physics

Overall Grade (Rank): 88.17/100 (3/19)   Upper Division Grade (Rank): 91.53/100 (1/19)

STANDARDIZED TESTS

TOEFL 107 (R28 L29 S22 W28)   **IELTS** 7.5 (R8.0 L8.5 S6.0 W6.5)   **GRE** V156 Q165 W3.5

RESEARCH INTERESTS

Galaxy Formation and Evolution

Stellar Populations and Star Formation in Galaxies

Galaxy Physical Properties and Demographics

Big Data Survey, Integral Field Unit (IFU) Survey

Astronomical Methods: Image Process & Data Analysis

RESEARCH EXPERIENCE

Summer Research, University of California, Santa Cruz (UCSC)   *July 2017 - Present*
Advisor: Prof.Sandra Faber & Prof.David Koo

· Generating synthetic SED for different **star formation history (SFH)** models
· Computing model **color evolutions** and match them with $0.5 < z < 2.5$ observations in **CANDELS**
· Testing SFH models derived from abundance matching and main sequence with **SED-fitting**
· Fine-tuning effects of fluctuations, measurement errors and metallicity on SFH models

Undergraduate Research, USTC   *October 2016 - November 2017*
Advisor: Prof.Xu Kong & Dr.Enci Wang

· Fitting continuum & emission lines of **SDSS MaNGA** IFU datacubes
· Deriving resolved quantities (eg. Σ_*, Σ_{SFR}, SFH, D4000) for MaNGA galaxies
· Constructing subsamples for galaxies with 'inside-out' and 'outside-in' recent assembly modes
· Exploring the connections between the patterns of **Sub-Galactic Main Sequence (SGMS)** and galaxy properties, assembly modes, feedback effects and evolutionary stages.

Summer Research, National Astronomical Observatory (NAOC)   *August 2016*
Advisor: Prof.You-jun Lu

· Reconstructing synthetic spectra with **Binary Black Hole (BBH)** double-disk accretion models
· Inferring posterior physical properties of BBH in Mrk231 from Keck spectra with **MCMC**
· Simulating BBH dynamical & frictional timescales in separate coalescence stages

Course Project: Computer Vision   *May 2017*

· Image Deconvolution: recovering faint exoplanent signals from Gemini/HST images based on K-L Transformation and High-pass Filtering

CONFERENCE & WORKSHOP

CANDELS Team Meeting	*August 2017*

    -Talk: Properties of Stellar Populations in Star-forming Galaxies Based on SED-fitting

Galaxy Formation & Evolution Workshop	*August 2017*
SDSS-IV MaNGA Team Meeting & MaNGA Data Workshop	*November 2016*
Annual Conference of Astronomical Society of China	*October 2016*
NAOC Observational Astrophysics Workshop	*July 2016*

    -Talk: Data Reduction & Calibration: Spectroscopy and Photometry with IRAF/AstroImageJ

ACADEMIC WORK

1. **From Classic to Realistic: Connenting Star Formation Histories, Color Evolutions and SED-fitting of 0.5<z<2.5 Galaxies in CANDELS**   *first author, in prep*

2. **Elevation or Suppression? The Resolved Star Formation Main sequence of Galaxies with Two Different Assembly Modes**   *first author, submitted to ApJ, 1st revision*

3. What Determines the Local Metallicity of Galaxies: Global Stellar Mass, Local Stellar Mass Surface Density or Sar Formation Rate?   *Gao et al. 2017, submitted to ApJ, 2nd revision*

4. The Properties of Massive Star-forming galaxies with Outside-in Assembly Mode
     Wang et al. 2017, ApJ, 844, 144

SKILLS & TECHNIQUES

Computer Languages	Python ($>$3 yrs), R, IDL, C, Shell, Mathematica
Software	`DS9, IRAF, Numpy, Scipy, Astropy, Pandas, Seaborn` (General); `BC03, FSPS, SMpy` (SPS); `FAST, STARLIGHT, PPXF` (SED-fitting); `SExtractor, AstroImageJ, statmorph` (Photometry); `PyMC` (MCMC); `Scikit-learn/image, AstroML, PyTorch` (Machine Learning)
Statistical Techniques	Regression, PCA, Factor Analysis, Classification, Clustering and etc.

APPOINTMENT

Research Assistant	*November 2015 - Present*

Key Laboratory for Research in Galaxies and Cosmology, USTC

Teaching Assistant	*Fall 2017*

AY14204	Galactic Astronomy	(galaxies in the universe; full position)
02217001	Astronomical Labs	(software & data process; half position)

VISITING

Shanghai Normal university (ShNU)	*September 2017*
University of California, Santa Cruz	*June 2017 - September 2017*

    -Talk: Resolved Main Sequence in Local SFGs Following Two Star-Forming Scenarios

Shanghai Astronomical Observatory (SHAO)	*October 2016, June 2014*
National Astronomical Observatory (NAOC)	*Summer 2016, August 2013*
Mauna Kea Observatory, Subaru Telescope	*February 2016*
Purple Mountain Observatory (PMO)	*July 2015*

AWARDS

NAOC Scholarship, USTC Excellence Scholarship Silver (top 10% in physics)