

QING LIU

Curriculum Vitae ◊ updated: Dec 18th 2017
lq960823@mail.ustc.edu.cn ◊ qliu.strikingly.com

EDUCATION

University of Science and Technology of China (USTC) *September 2014 - Present*
Undergraduate, Department of Astronomy, School of Physics
Overall GPA : 3.72/4.3 Upper Division GPA : 3.95/4.3 Rank : 3/19

RESEARCH INTERESTS

Galaxy Formation and Evolution	Stellar Populations & Star Formation in Galaxies
Galaxy Physical Properties and Demographics	Galaxy Survey, Integral Field Unit (IFU) Survey
Astrostatistics & Astroinformatics	Black Hole Accretion Disk

SKILLS & TECHNIQUES

Computer Languages	Python (>3 yrs), R, IDL, C, Shell, Mathematica
Software & Packages	DS9, IRAF, Numpy, Scipy, Astropy, Pandas, Matplotlib (General); BC03, FSPS, SMpy (SPS); FAST, STARLIGHT, PPXF (SED-fitting); SExtractor, AstroImageJ, statmorph (Photometry); PyMC (MCMC); Scikit-learn/image, AstroML, PyTorch (Machine Learning)

RESEARCH EXPERIENCE

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

- 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 patterns of the **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 exoplanet signals from Gemini/HST images based on K-L Transformation and High-pass Filtering

ACADEMIC ACCOMPLISHMENT

1. Teaching / Reseaching Assistantship

- **Research Assistant** *November 2015 - Present*
Key Laboratory for Research in Galaxies and Cosmology, USTC
- **Teaching Assistant** *Fall 2017*
AY14204 Galactic Astronomy
Textbook: Galaxies in the Universe, 2nd edition, S & G Class size: 40
02217001 Astronomical Labs
Software & Data Process (plotting, file i/o, fitting etc.) Class size: 34

2. Publication List

- (a) Articles published in refereed journals
 - i. Enci Wang, Xu Kong, Huiyuan Wang, [3 authors], **Qing Liu**, 2017, ApJ, 844, 144
Title: The Properties of Massive Star-forming galaxies with Outside-in Assembly Mode
- (b) Articles submitted to refereed journals
 - i. **Qing Liu**, Enci Wang, Xu Kong, [4 authors], submitted to ApJ
Title: **Elevation or Suppression? The Resolved Star Formation Main sequence of Galaxies with Two Different Assembly Modes**
 - ii. Yulong Gao, Enci Wang, Xu Kong, [3 authors], **Qing Liu**, [4 authors], submitted to ApJ
Title: What Determines the Local Metallicity of Galaxies: Global Stellar Mass, Local Stellar Mass Surface Density or Star Formation Rate?
- (c) Articles in process
 - i. **Qing Liu**, Xinyi Tong, David Koo, Sandra Faber, Aldo Rodriguez-Puèbla, [5 authors]
Title: **From Classic to Realistic: Connecting Star Formation Histories, Color Evolutions and SED-fitting of $0.5 < z < 2.5$ Galaxies in CANDELS**

3. Oral Presentation

- Title: Connecting SFH, Color Evolutions and SED-fitting of $0.5 < z < 2.5$ Galaxies in CANDELS
1.5 hours, USTC Colloquium, November 2017
- Title: Properties of Stellar Populations in Star-forming Galaxies Based on SED-fitting
15 minutes, CANDELS Meeting, August 2017
- Title: Resolved Main Sequence in Local SFGs Following Two Star-Forming Scenarios
1 hour, UCSC Colloquium, July 2017
- Title: Data Reduction & Calibration: Spectroscopy and Photometry with IRAF/AstroImageJ
15 minutes, NAOC Time Domain Observational Astrophysics Workshop, July 2016

4. Conference & Workshop Attended

- CANDELS Team Meeting *August 2017*
- 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 Time Domain Observational Astrophysics Workshop *July 2016*

AWARDS

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