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

RESEARCH INTERESTS

Galaxy Formation and Evolution
Galaxy Physical Properties and Demographics
Astrostatistics & Astroinformatics
Stellar Populations & Star Formation in Galaxies
Galaxy Survey, Integral Field Unit (IFU) Survey
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_*, $\Sigma_{\rm SFR}$, 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 exoplanent 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 Sar Formation Rate?

   (c) Articles in process

   i. **Qing Liu**, Xinyi Tong, David Koo, Sandra Faber, [6 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