QING LIU

Curriculum Vitae ⋄ updated: Sept 10th 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 GPA: 88.10/100 Junior GPA: 91.53/100 Rank: 3/20

STANDARDIZED TESTS

TOEFL 105 (R30 L26 S22 W27) **IELTS** 7.5 (R8.0 L8.5 S6.0 W6.5)

RESEARCH INTERESTS

Stellar Population Synthesis (SPS) & Analysis
Galaxy Formation and Evolution
Star-forming Main Sequence, Radial Profiles, 2D Patterns
Big Data Survey, Integral Field Unit (IFU) Survey
Statistics, Machine learning & Computer Vision in Astronomy

RESEARCH EXPERIENCE

Summer Research, University of California, Santa Cruz (UCSC) *July 2017 - Present*
With 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 from **CANDELS**
· Testing SFH models derived from abundance matching and main sequence with **SED-fitting**
· Fine-tuning models on effects of fluctuations, metallicity and emission lines

Undergraduate Research, USTC *October 2016 - May 2017*
With Prof. Xu Kong & Dr. Enci Wang

· Manipulating SED fitting & emission line fitting on SDSS galaxy spectra
· Extracting resolved quantities (eg. Σ_*, Σ_{SFR}) of nearby galaxies from **MaNGA** data
· Exploring patterns and trends in **spatially-resolved star formation** activities
· Studying dependencies of resolved SFMS in star-forming galaxies on global properties

Summer Research, National Astronomical Observatory (NAOC) *August 2016*
With 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: Image Deconvolution *May 2017*

· Recovering faint exoplanent signals in direct imaging data from Gemini and HST based on Karhunen-Loeve 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 for Time-domain Astronomy

PUBLICATION

1. **From Classic to Realistic: Connenting Star Formation Histories and Color Evolutions of 0.5<z<2.5 Galaxies in CANDELS** *first author, in prep*
2. **Resolved Main Sequence in Local Star-forming Galaxies Following Incide-out and Outside-in Mass Assembly Modes** *first author, submitted to MNRAS*
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*
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/Pyraf (General)
	GALAXEV , FSPS , SMpy (SPS)
	SExtractor , AstroImageJ (Photometry)
	FAST , STARLIGHT , ppxf, ifuanal (SED-fitting)
	scikit-learn/image , astroML , PyTorch (Machine Learning)
Statistical Techniques	regression, PCA, factor analysis, hypothetical testing,
	Bayesian inference, classification, clustering, cross validation and etc.

APPOINTMENT

Research Assistant *November 2015 - Present*
Key Laboratory for Research in Galaxies and Cosmology, USTC

Teaching Assistant *Fall 2017*
AY14204 Galaxies in the Universe (for 4th-yr UG & 1st-yr PG)

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*