

# QING LIU

Curriculum Vitae ◊ updated: Sept 7th 2017  
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## EDUCATION

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**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

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

## RESEARCH INTERESTS

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Stellar population synthesis (SPS) and analysis  
Formation and evolution of galaxies from  $z \sim 2.5$  to 0  
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

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**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 - Present*  
*With Prof. Xu Kong & Dr. Enci Wang*

- Manipulating SED fitting & emission line fitting on SDSS galaxy spectra
- Extracting resolved quantities (eg.  $\Sigma_*$ ,  $\Sigma_{SFR}$ ) 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 exoplanet signals in direct imaging data from Gemini and HST based on Karhunen-Loeve Transformation and High-pass Filtering

## CONFERENCE & WORKSHOP

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CANDELS Team Meeting	August 2017
<i>-Talk: Properties of Stellar Populations in Star-forming Galaxies Based on SED-fitting</i>	
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
<i>-Talk: Data Reduction &amp; Calibration: Spectroscopy and Photometry for Time-domain Astronomy</i>	

## PUBLICATION

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1. **From Classic to Realistic: Connetting 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 Inside-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, to be submitted*
4. **The Properties of Massive Star-forming galaxies with Outside-in Assembly Mode** *Wang et al. 2017, ApJ, 844, 144*

## SKILLS & TECHNIQUES

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<b>Computer Languages</b>	Python (>3 yrs) , R , IDL , C , Shell , Mathematica
<b>Software</b>	DS9 , IRAF/Pyraf (General) GALAXEV , FSPS , SMpy (SPS) SExtractor , AstroImageJ (Photometry) FAST , STARLIGHT , ppxf, ifuanal (SED-fitting) scikit-learn/image , astroML , PyTorch (Machine Learning)
<b>Statistical Techniques</b>	regression, PCA, factor analysis, hypothetical testing, Bayesian inference, classification, clustering, cross validation and etc.

## APPOINTMENT

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<b>Research Assistant</b>	November 2015 - Present
Key Laboratory for Research in Galaxies and Cosmology, USTC	
<b>Teaching Assistant</b>	Fall 2017
AY14204	Galaxies in the Universe (for 4th-yr UG & 1st-yr PG)

## VISITING

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University of California, Santa Cruz	June 2017 - Present
<i>-Talk: Resolved Main Sequence in Local SFGs Following Two Star-Forming Scenarios</i>	
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
Yunnan Observatory	April 2013