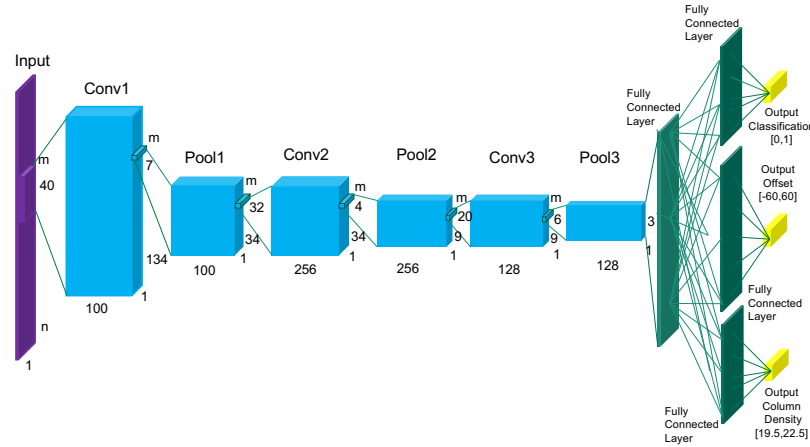
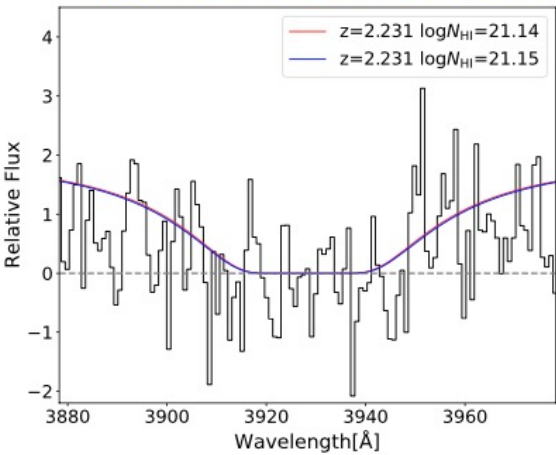


Machine Learning to detect DLAs in DESI

We develop a CNN model to detect DLAs in DESI spectra, more than 98% detection rate is achieved. This algorithm can also estimate the redshift and column density of DLAs

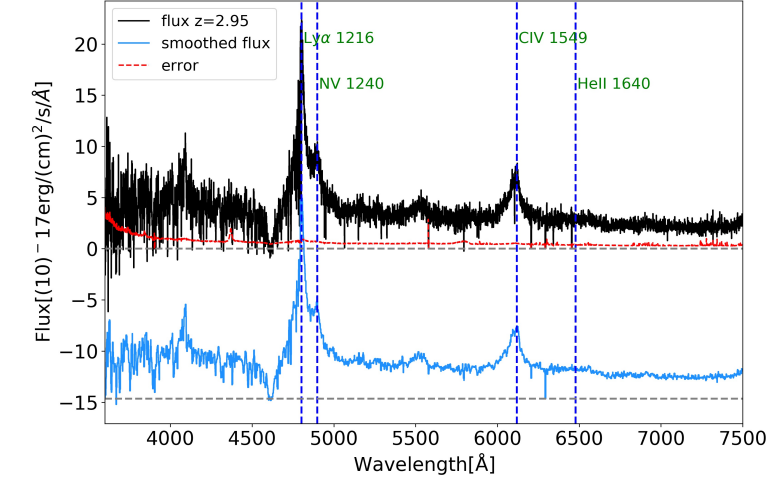
spec-14000010 True Positive(TP)



Searching DLAs in DESI data

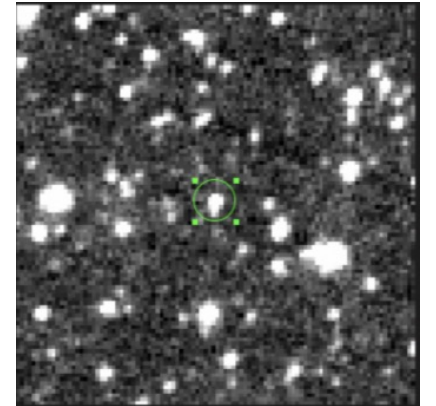
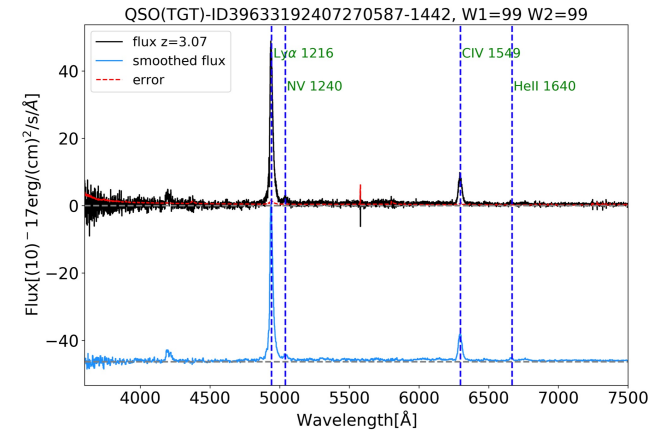
The metallicity statistic study, find unique sample

QSO(TGT)-ID39633188238133170-2643, W1=19.80+/-0.04 W2=19.57+/-0.06

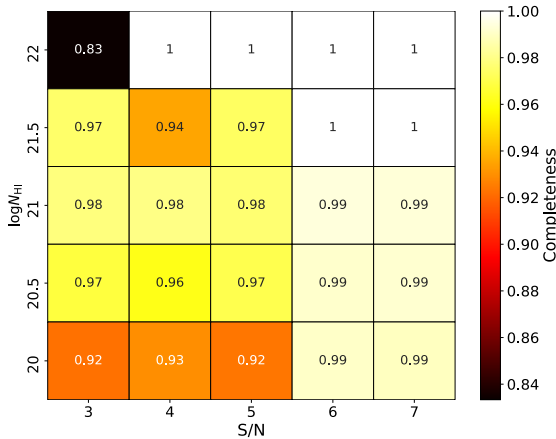


Type II QSOs study

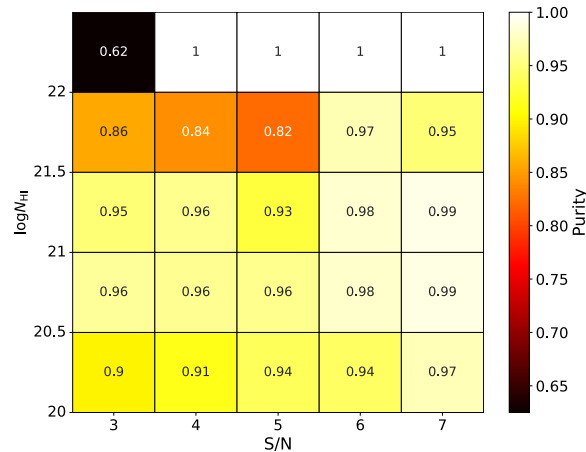
Type II QSO candidates in DESI, GEMINI data reduction



Completeness



Purity



— Self-Introduction

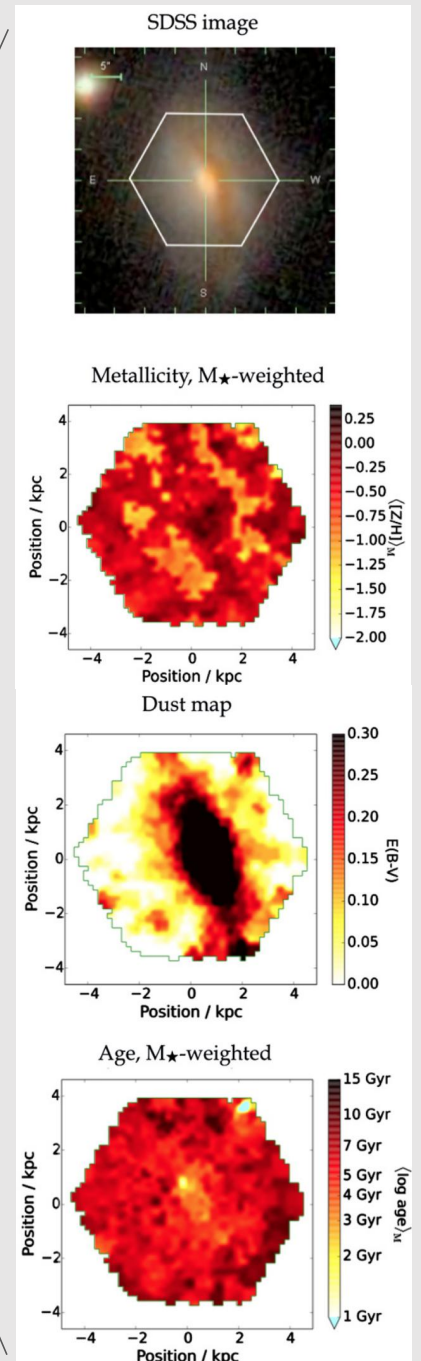
- Name: Zhuo Cheng(程卓)
- Grade: Fourth grade Ph.D.
- Supervisor: Prof. Cheng Li
- Research Interests: galaxy formation and evolution
- Current work: Post starburst galaxy in MaNGA

star-forming



quenched

MaNGA
Survey



Xiaoyi Ma (马潇依) (Contact: xiaoyi.ma@mail.utoronto.ca)

21' graduate of undergraduate program in astronomy and astrophysics at the University of Toronto

Visiting student at Tsinghua University

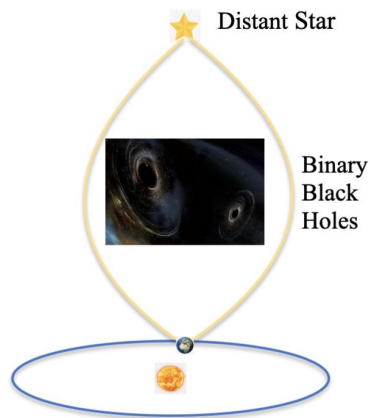
Supervisor: Prof. Wei Zhu

Research Topic: **Detecting stellar-mass black hole binaries via gravitational microlensing**

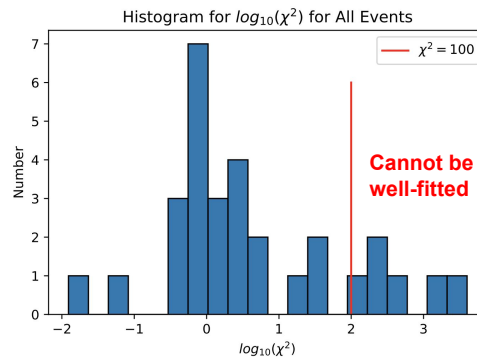
Source Plane

Lens Plane

Observer Plane



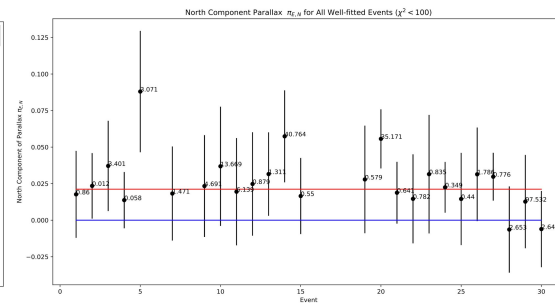
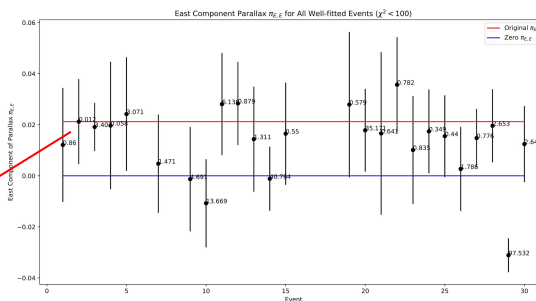
Null detection of black hole binaries via microlensing?



Cannot be modelled by linear orbital motion approximation

Do not yields precise parallax detections

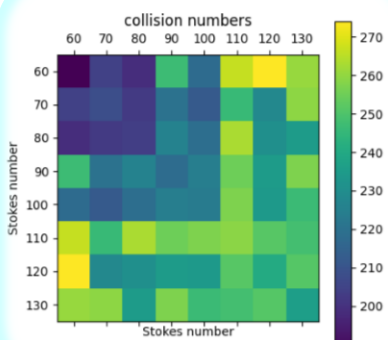
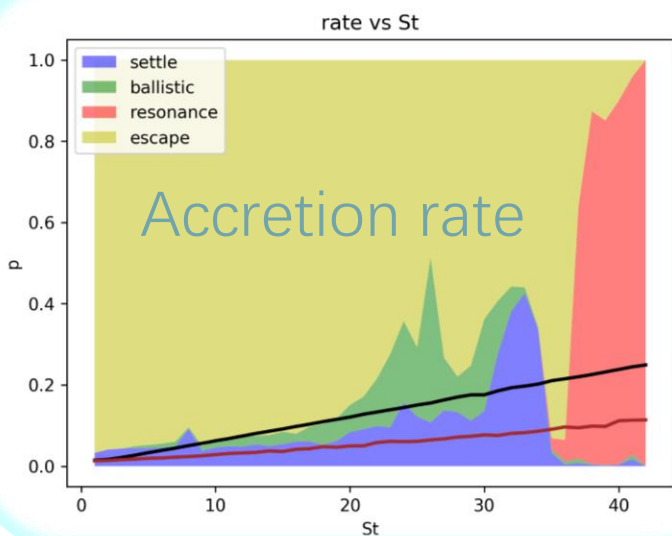
Large Uncertainty



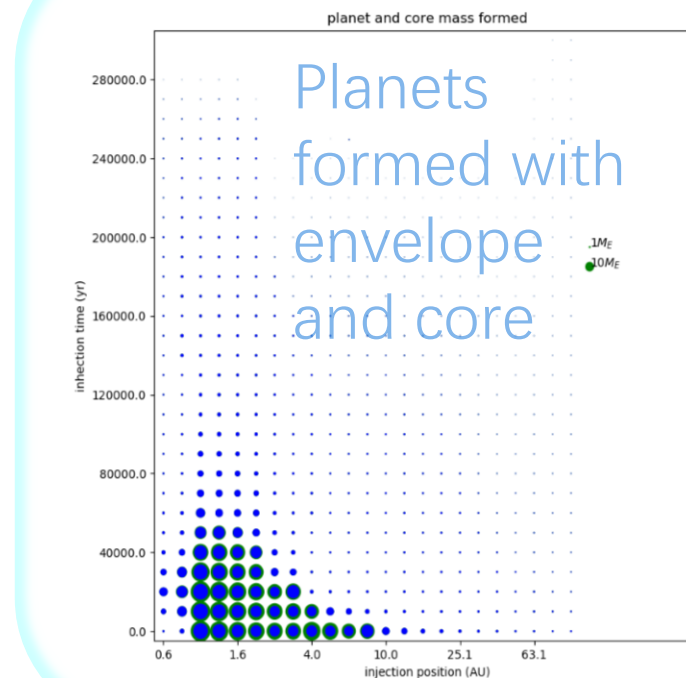
Large Stokes number pebble accretion



黄赫龙
Helong Huang

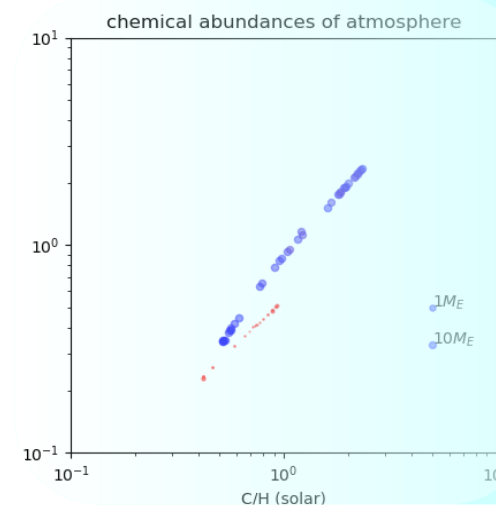


Resonance
and
collide

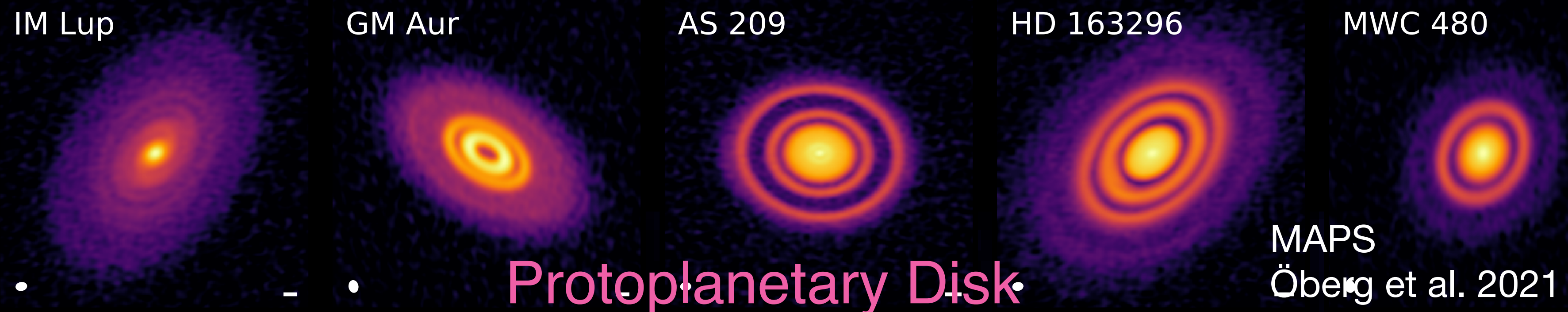


四年级本科生
导师是Chris Ormel
系外行星方向

Disk chemistry and
planet



Disk
and
planet
chemistry

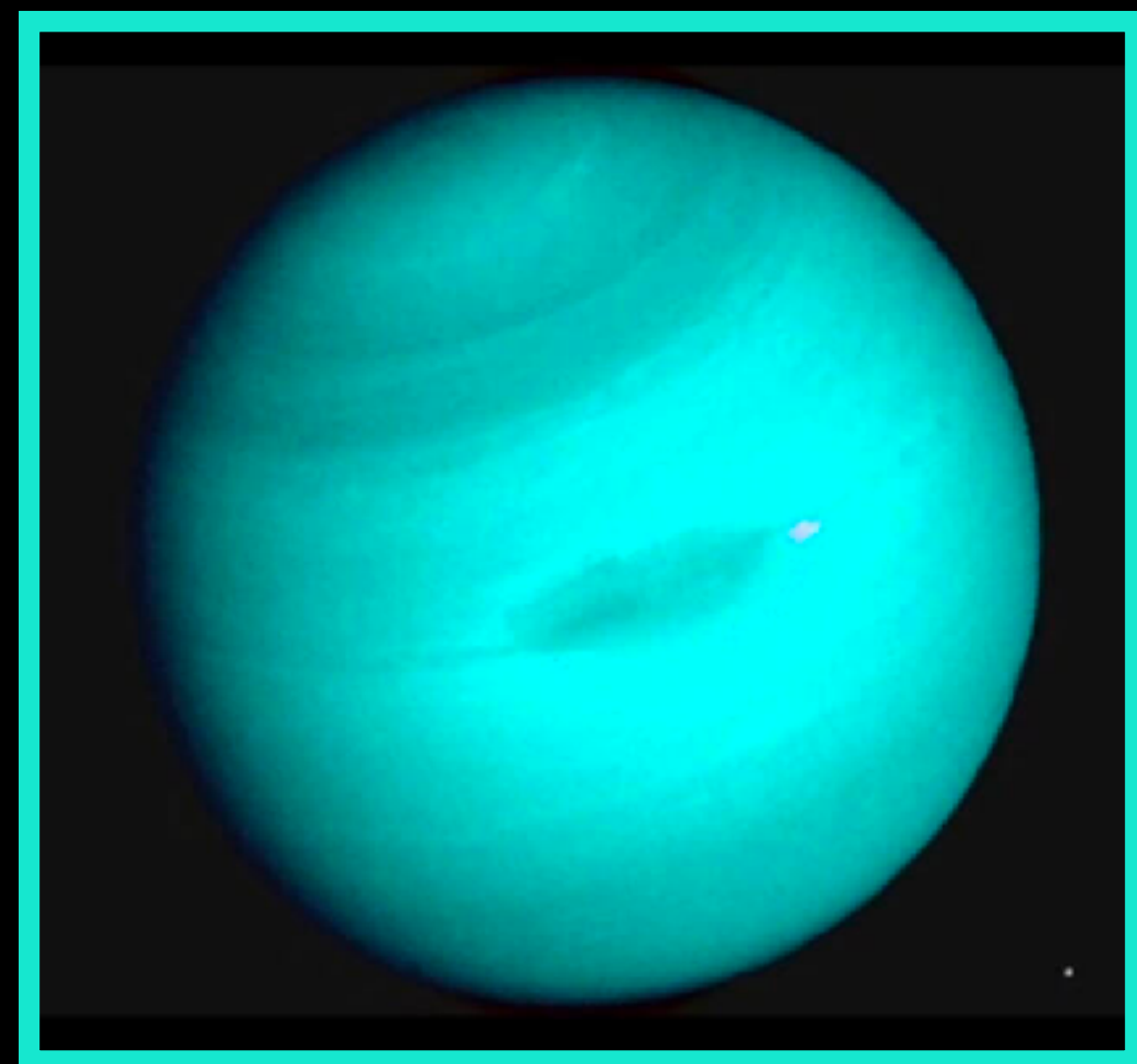
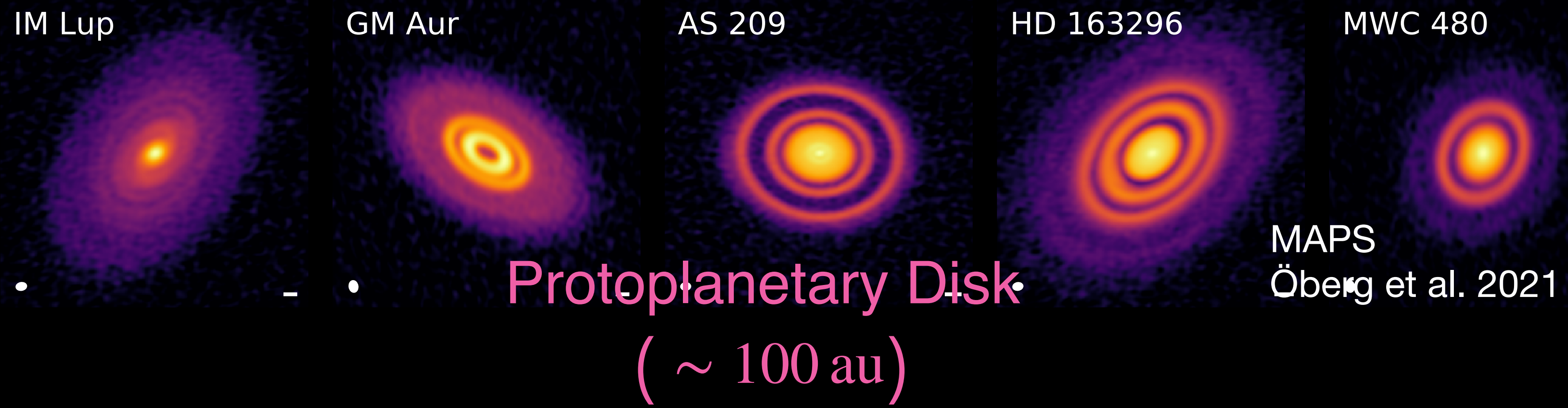


Pebble
(mm ~ cm)

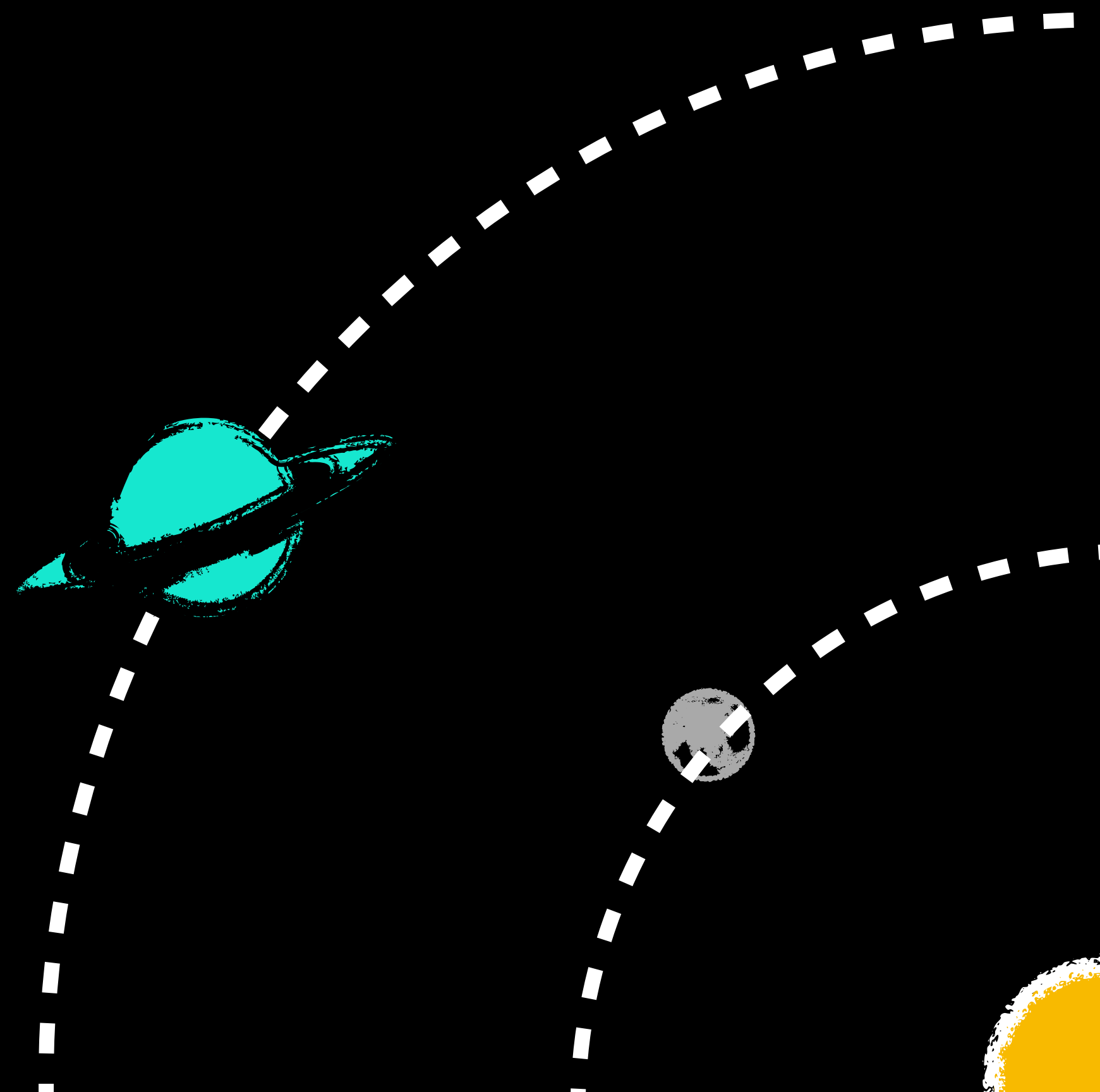


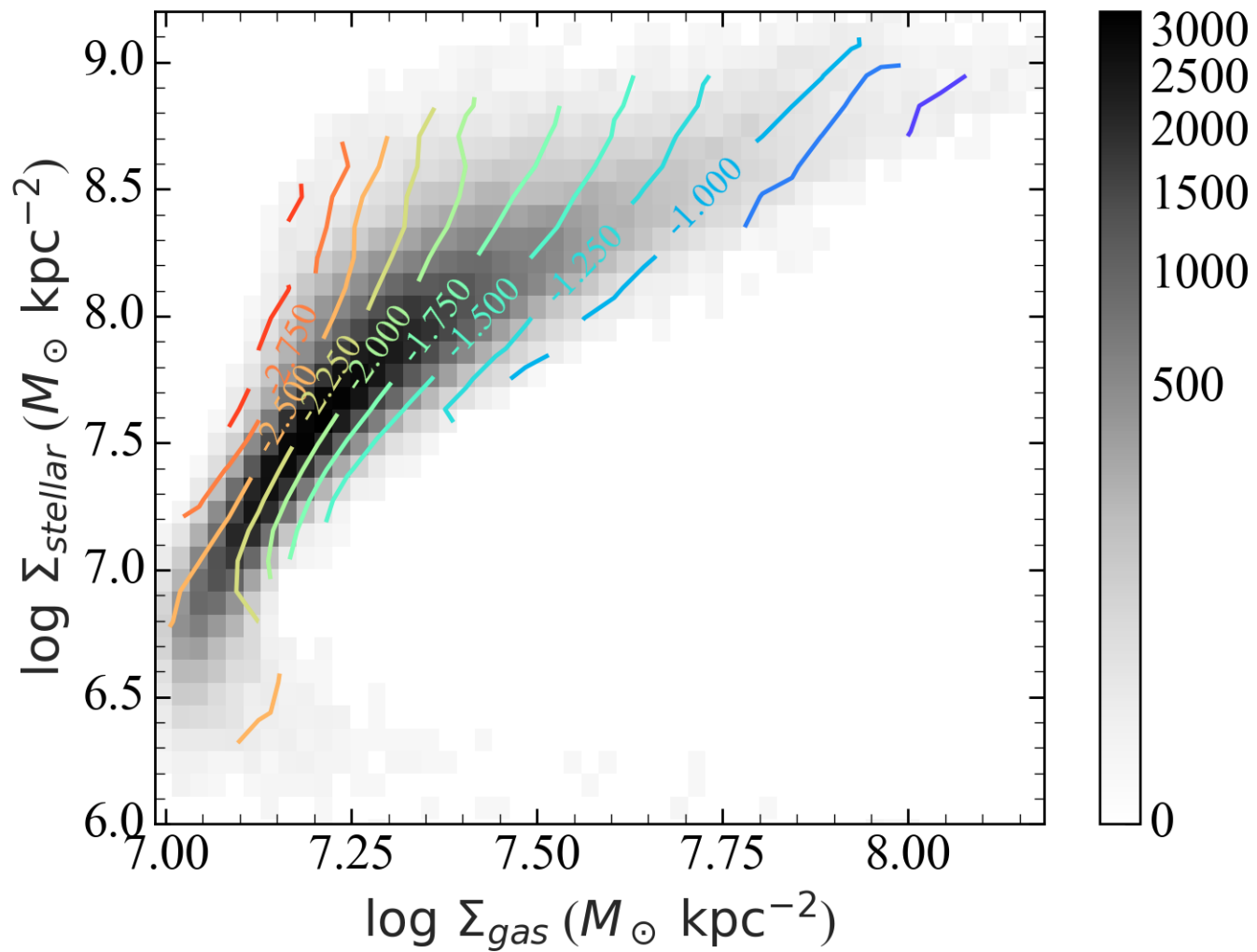
Planetesimal
(≥ km)





Protoplanet
(~ 1000km)





MaNGA

- Median physical resolution: 1.8 kpc
- Estimated H2

MUSE-ALMA

- Physical resolution reach to 500 pc (the scale of molecular cloud)
- H2 converted from ALMA observed CO

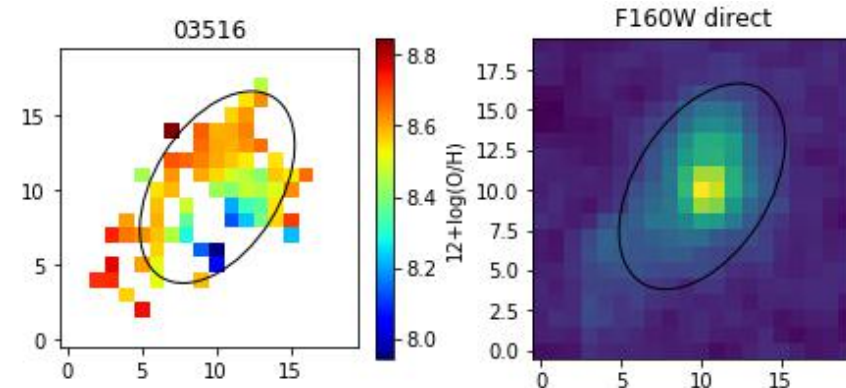
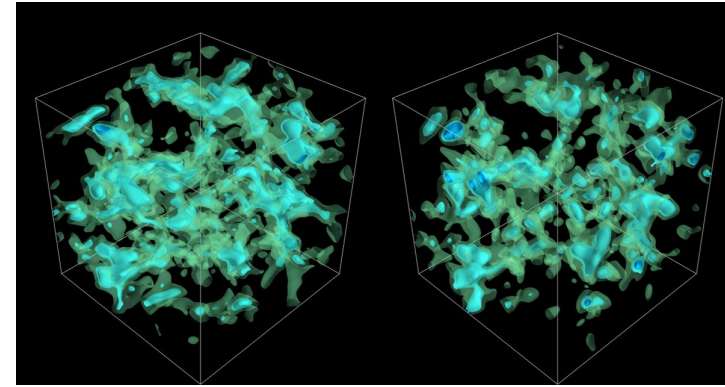
Zihao Li

First year PhD student at DoA, supervised by Zheng Cai

Research area: Observational cosmology

Recent works

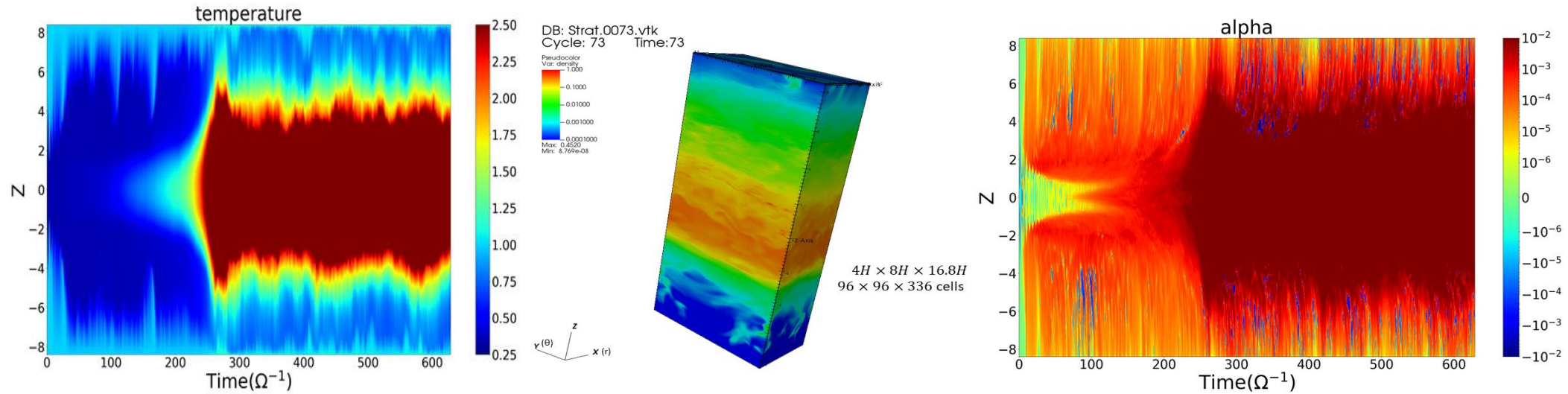
- IGM tomography
 - ☆ I'm using Ly α forest in quasar & galaxy spectra to reconstruct the 3-D density field of large scale structure of the universe.
- The mass-metallicity relation and metallicity gradient of galaxies in overdense environments
 - ☆ I'm using HST grism spectra to study high- z galaxies, and try to find out how the environments impact on the galaxies.
- ...



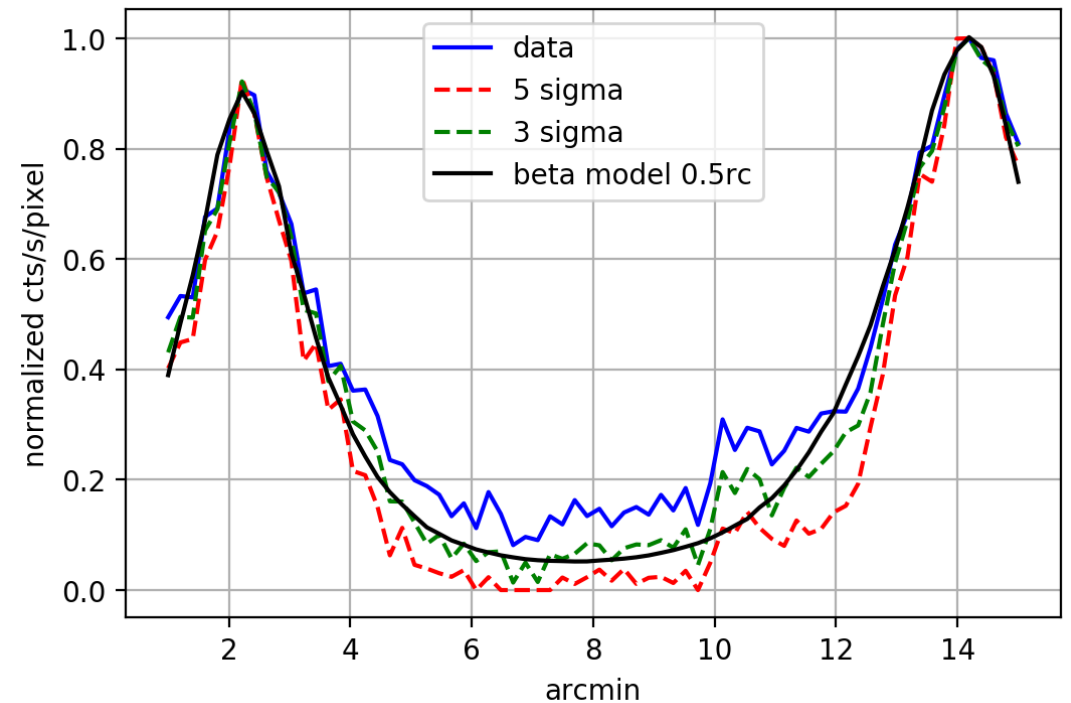
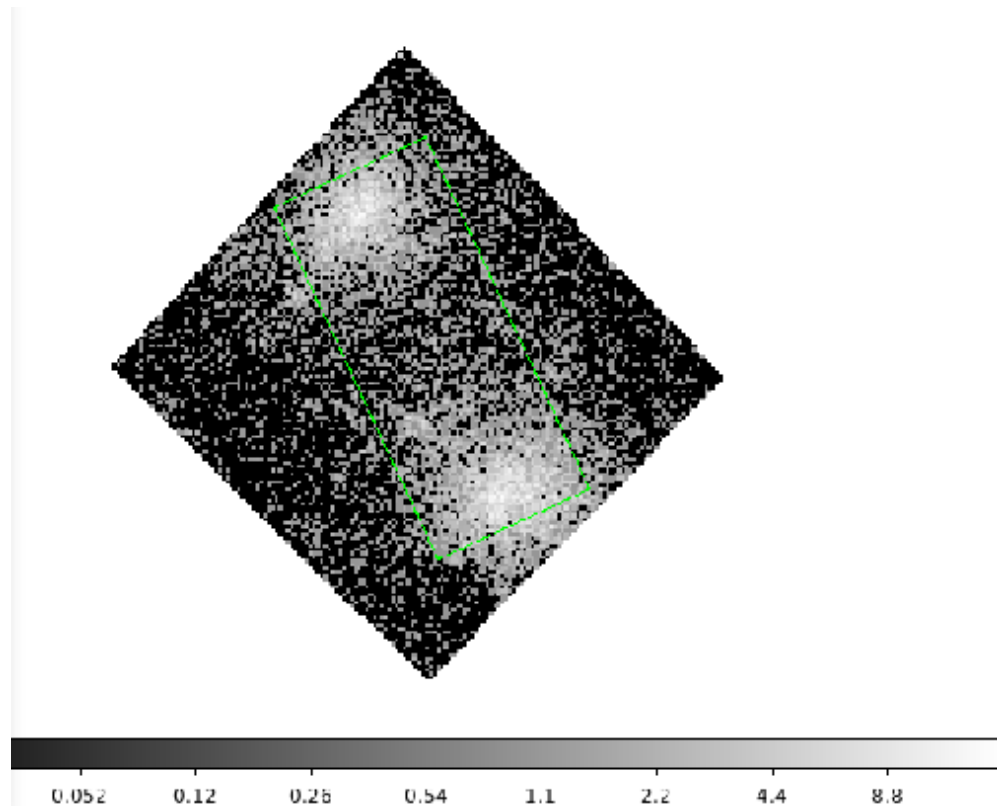
Shengtang Wang

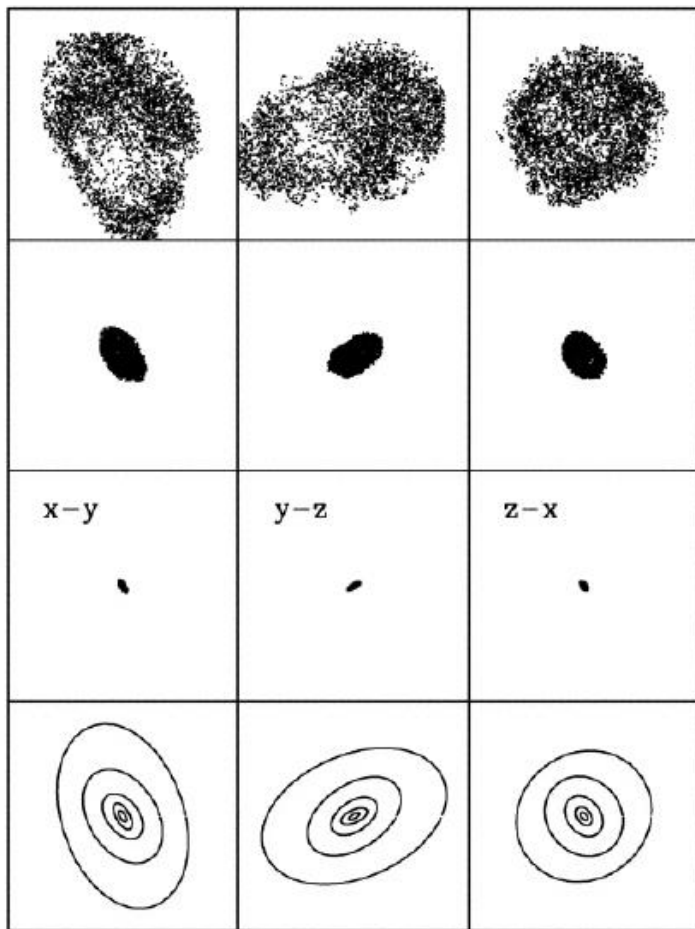
Advised by Xuening Bai

- Research Interest: Gas Dynamics of Protoplanetary Disk
- Current Working On: Coding for Radiative MHD (by Flux Limited Diffusion)

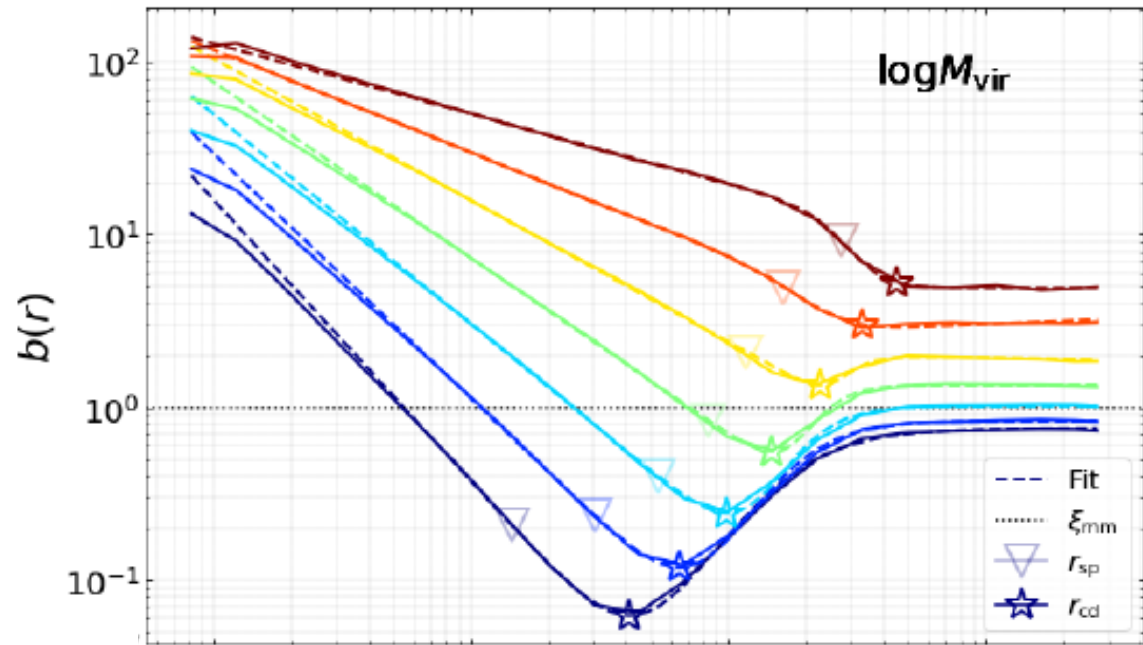


- Yanling Chen 陈艳玲
- Third year of PhD
- Probing Cluster outskirts with X-ray observations
- Recently: reducing A222-A223 suzaku data to see if there's filament between them





Jing et.al 2002



Fong et al. 2020

About me:

My name is **Ma Qinglin**, first year PhD, my tutor is Prof. **Li Cheng**.

About my research:

I'm interested in **Galaxy and Cosmology**.

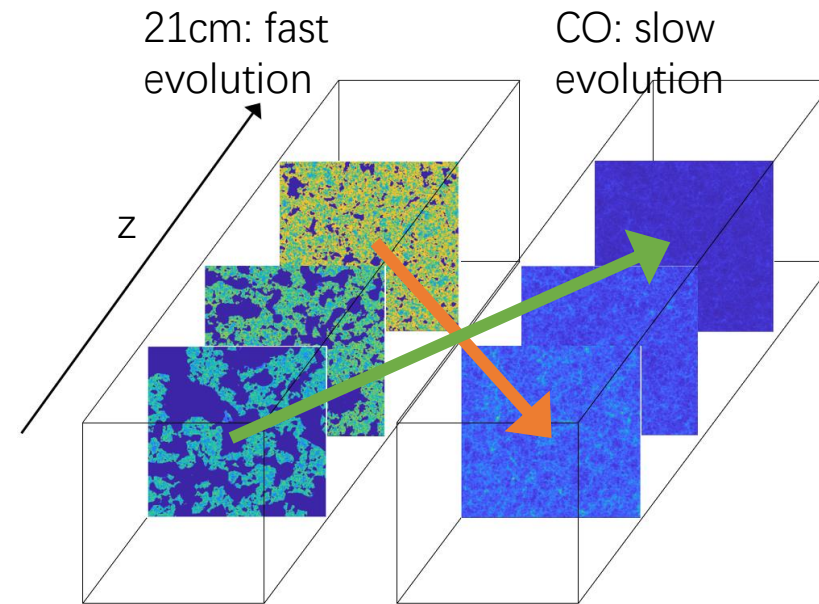
It is difficult to measure **halo shape** in the observation. Dark matter halos are associated with the large-scale distribution of matter in the universe, so statistically measuring **the distribution of galaxies** may provide a way to measure the shape of the halos.

Zhaoning Liu

Third Grade of Post Graduate Student

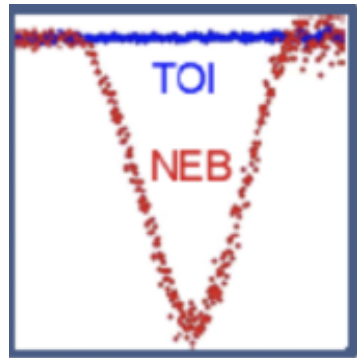
Research Area: 21cm Cosmology

Ongoing Research Project:
Analytical explanation of EoR
Antisymmetric Cross-correlation
between HI and CO line

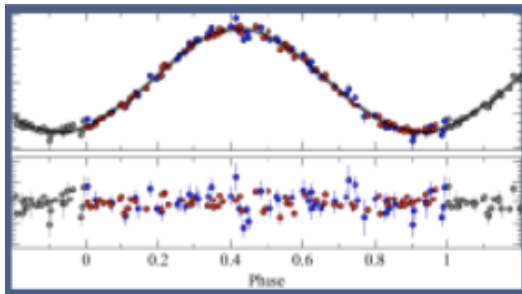


TESS Follow-up observations

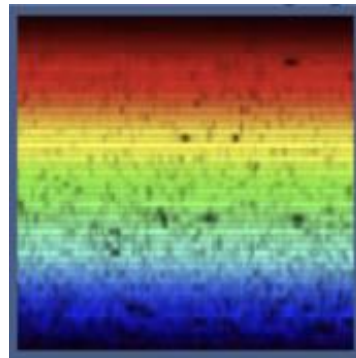
Transiting Exoplanet Survey Satellite (TESS)



Ground-based
photometry



Precise
radial velocity



Recon
spectroscopy

Planet properties:
radius, mass, mass ratio, occurrence rate

Stellar properties :
abundance

- Ongoing Projects:
- Elemental abundance of TESS/Kepler solar analogs
- Planets around M dwarfs
- Low mass stellar companion characterization

Tianjun Gan (4th year graduate)
Supervisors : Shude Mao & Sharon Wang

郑鑫宇

- 目前博二
- 导师：白雪宁

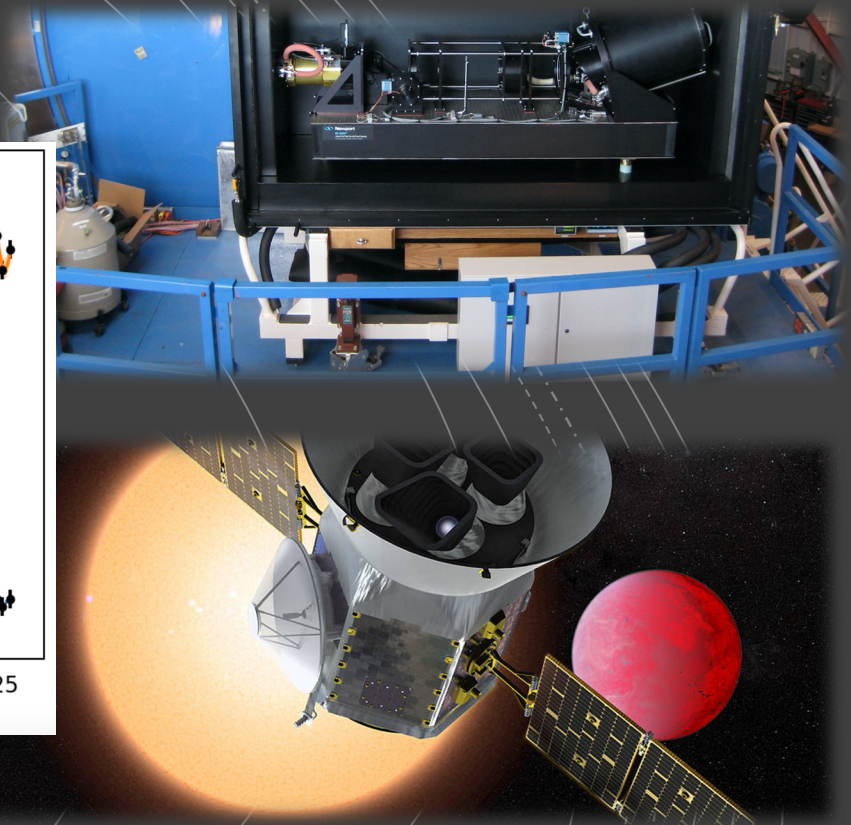
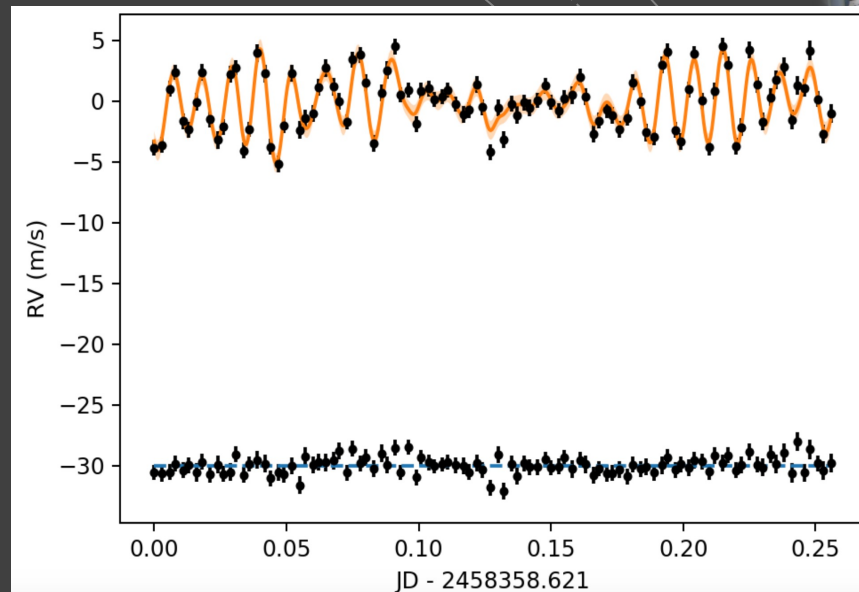
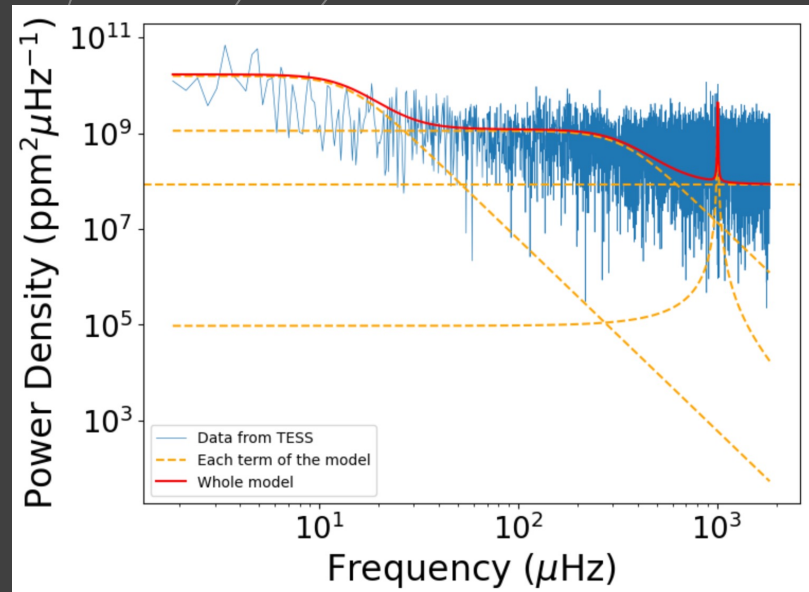
- 研究方向：原行星盘的数值模拟
- 现阶段研究内容：原行星盘最内区域 ($<1\text{AU}$) 的电离度计算

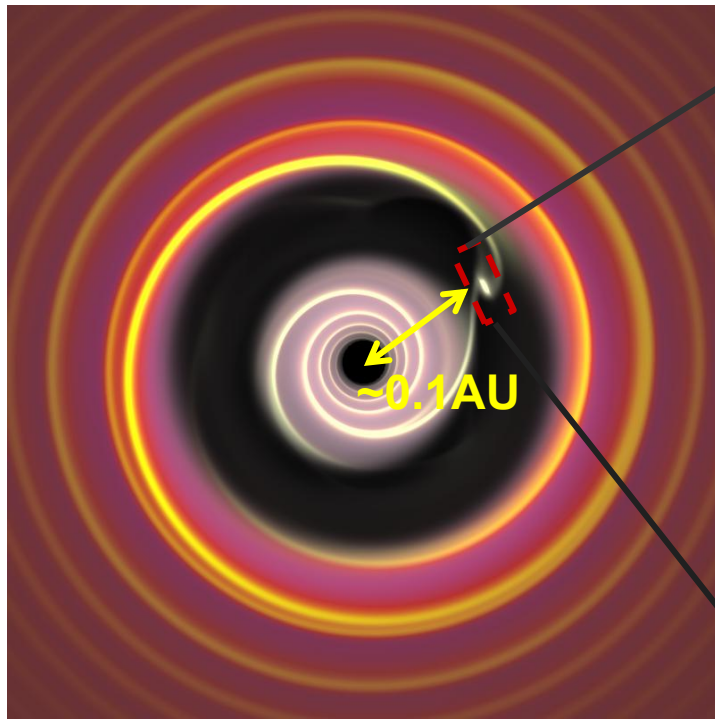
RVxTESS : Mitigating RV Signal Induced by Stellar Jitter

Jiaxin Tang

Supervisor: Sharon Xuesong Wang

- Stellar jitter affects exoplanet detection
- Conduct a method using Gaussian Process to mitigate stellar jitter
- Result shows a model of 2 granulation and 1 oscillation terms

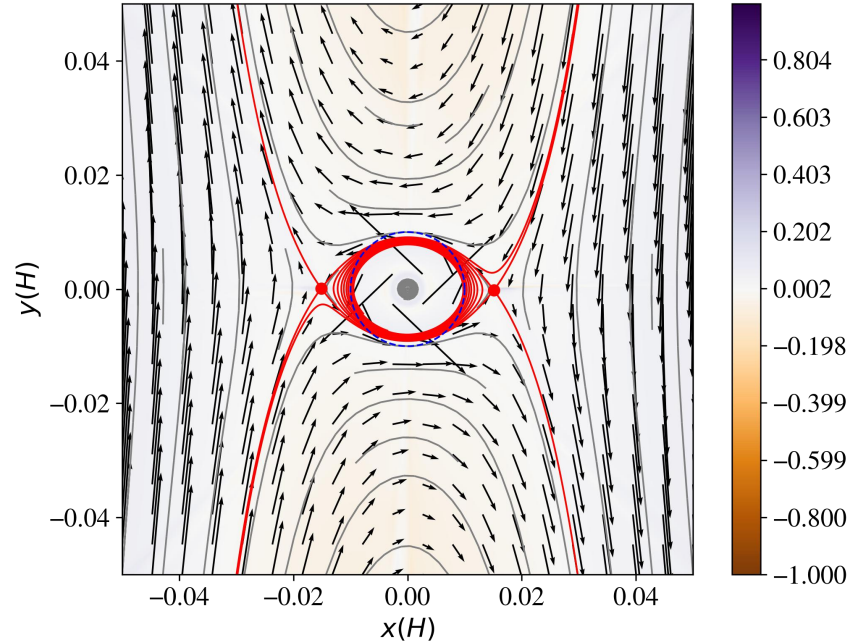




protoplanetary disk

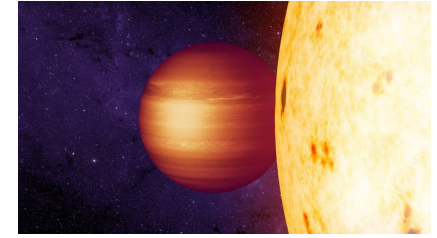
nsf.gov

$T = 50.00 \omega^{-1}$, Rin-10%-256*2, w/o sf, Linear+Hancock
 $cfl = 0.3, \Gamma = 1.3$

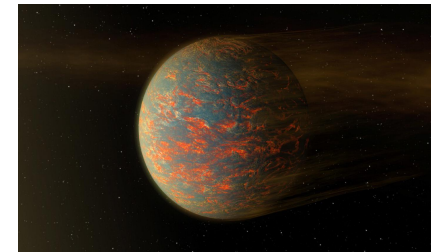


atmospheric recycling ($\sim 0.001\text{AU}$)

CoRoT-2b

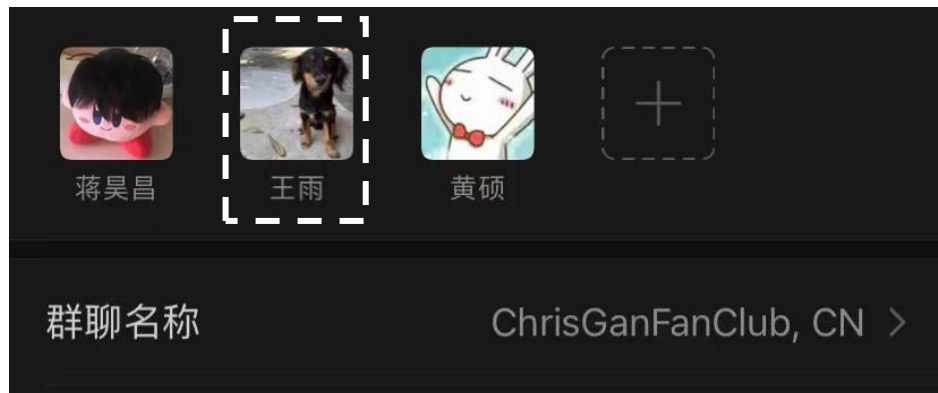


hot Jupiter?



super earth?

55 Cancri e, NASA.org



YU WANG

1st year PhD student, advised by Prof. Ormel.
 Now interested in many things about planet
 (theory & obser), HD/MHD simulation, also
 open to all astronomy topics.



Xiaochen SUN (孙晓晨)

- 4th-year graduated student ☹️
- Advised by Xue-Ning Bai
- Office: Science Building 414
- Plasma astrophysics, Simulation: CRs' acceleration & propagation
- Topic in this student seminar: core-collapse supernova (looking for teammates..)



Xiaohan Wang

- PhD student, Grade 1
- Supervisor: Prof. Shude Mao
- Galactic cosmology
- Properties of bulges with MaNGA data
 - Kinematics of stellar and gas component
 - Spatial information
 - Simulations

Research interest

The amount of HI (atomic hydrogen) gas in galaxies and dark matter halos ?

Methods

1. Model: HI estimator
2. Signal extraction: matched filter

Xiao Li

supervisor:
Cheng Li, Houjun Mo



清华大学天文系
Department of Astronomy, Tsinghua University

LIG The LIG Team
lig.astro.tsinghua.edu.cn

- Jiahuan Zhu(朱佳欢)
- Second-year graduate student
- Research direction: High energy astrophysics
- Research stage:
 - Residual modulation of X-ray polarimeter
 - Compton camera based on CZT

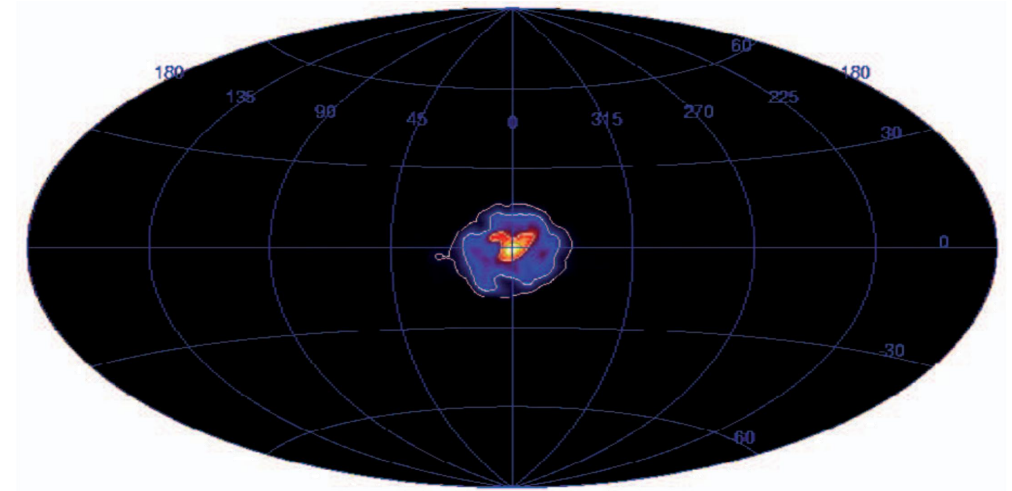
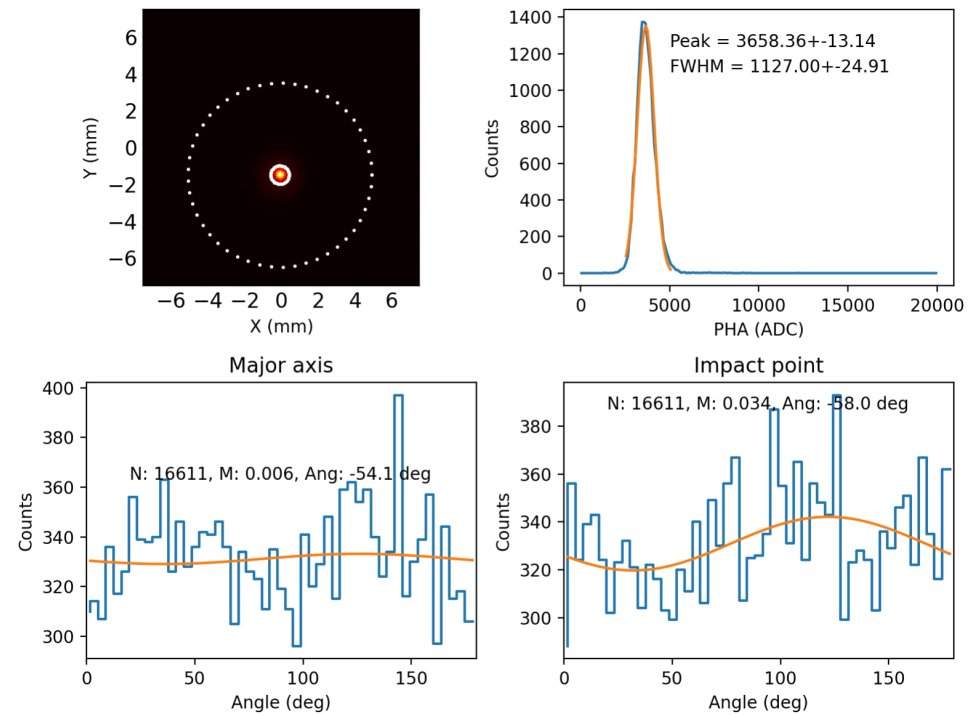


Fig. 4. Richardson-Lucy image of 511 keV gamma-ray line emission (iteration 17). Contour levels indicate intensity levels of 10^{-2} , 10^{-3} , and 10^{-4} $\text{ph cm}^{-2} \text{s}^{-1} \text{sr}^{-1}$ (from the centre outwards).



1-D



1-C



1-H

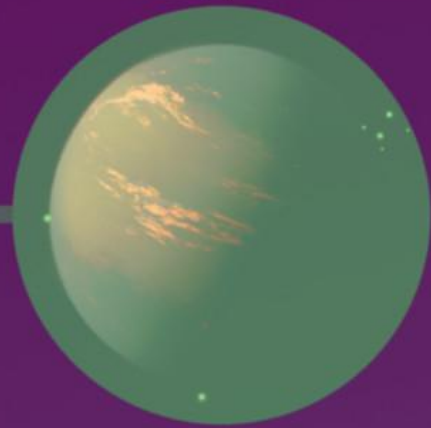
My name is Shuo Huang (Second year), working with Chris Ormel, on planets' dynamical evolution after their birth.



1-E



1-B



1-G

TRAPPIST

Jiacheng Meng (孟佳程)

Supervisor: Prof. Cheng Li

1. Cross-correlation technique

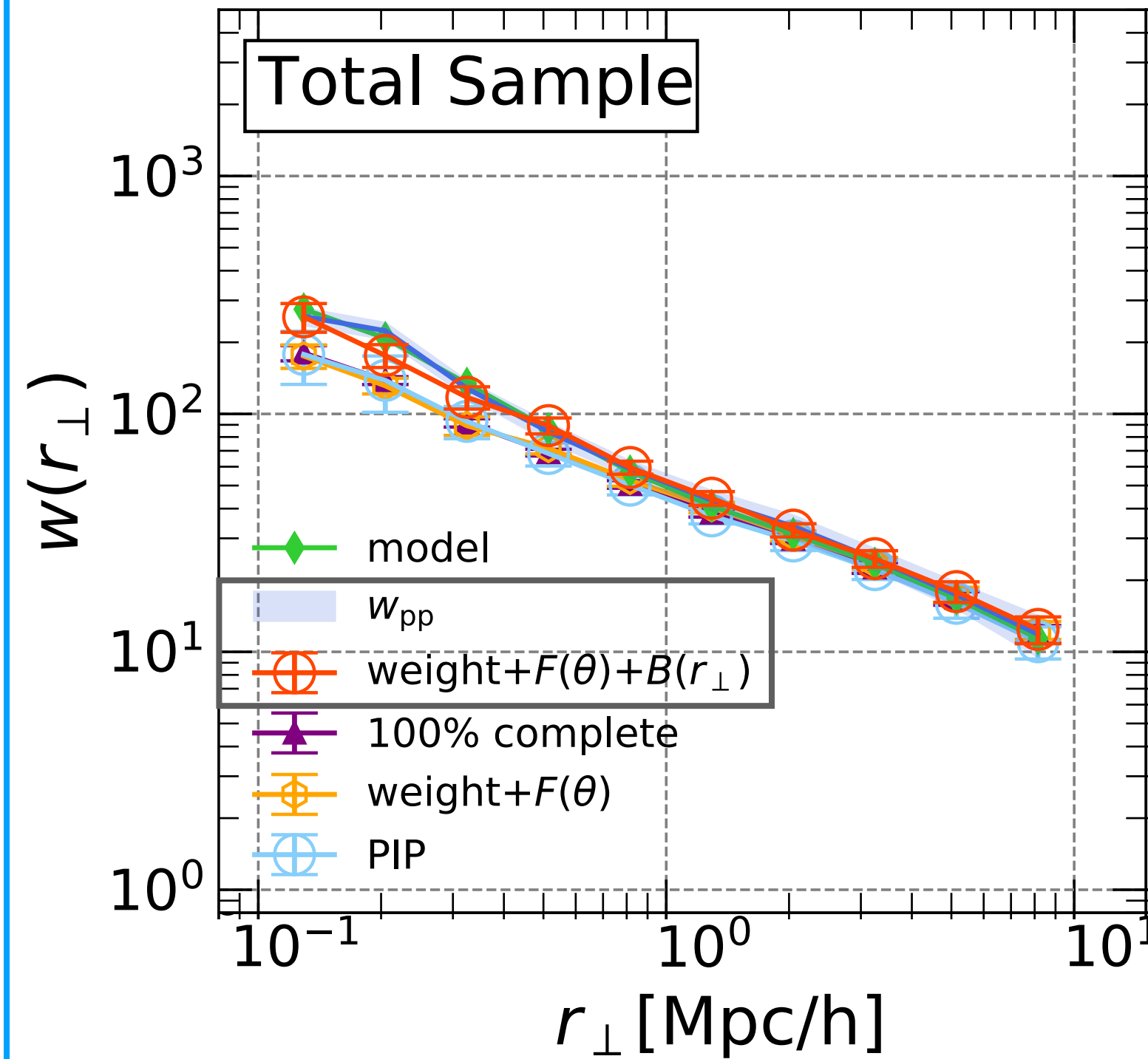
Sample with distance information
(galaxy spectroscopic sample, galaxy group
catalog...)

+
Image (no precise distance information).

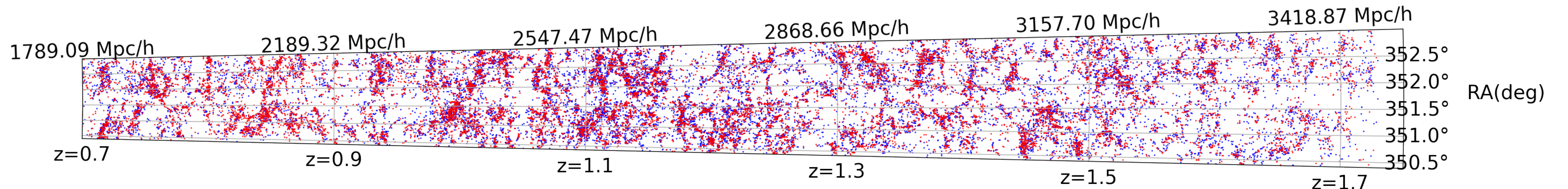
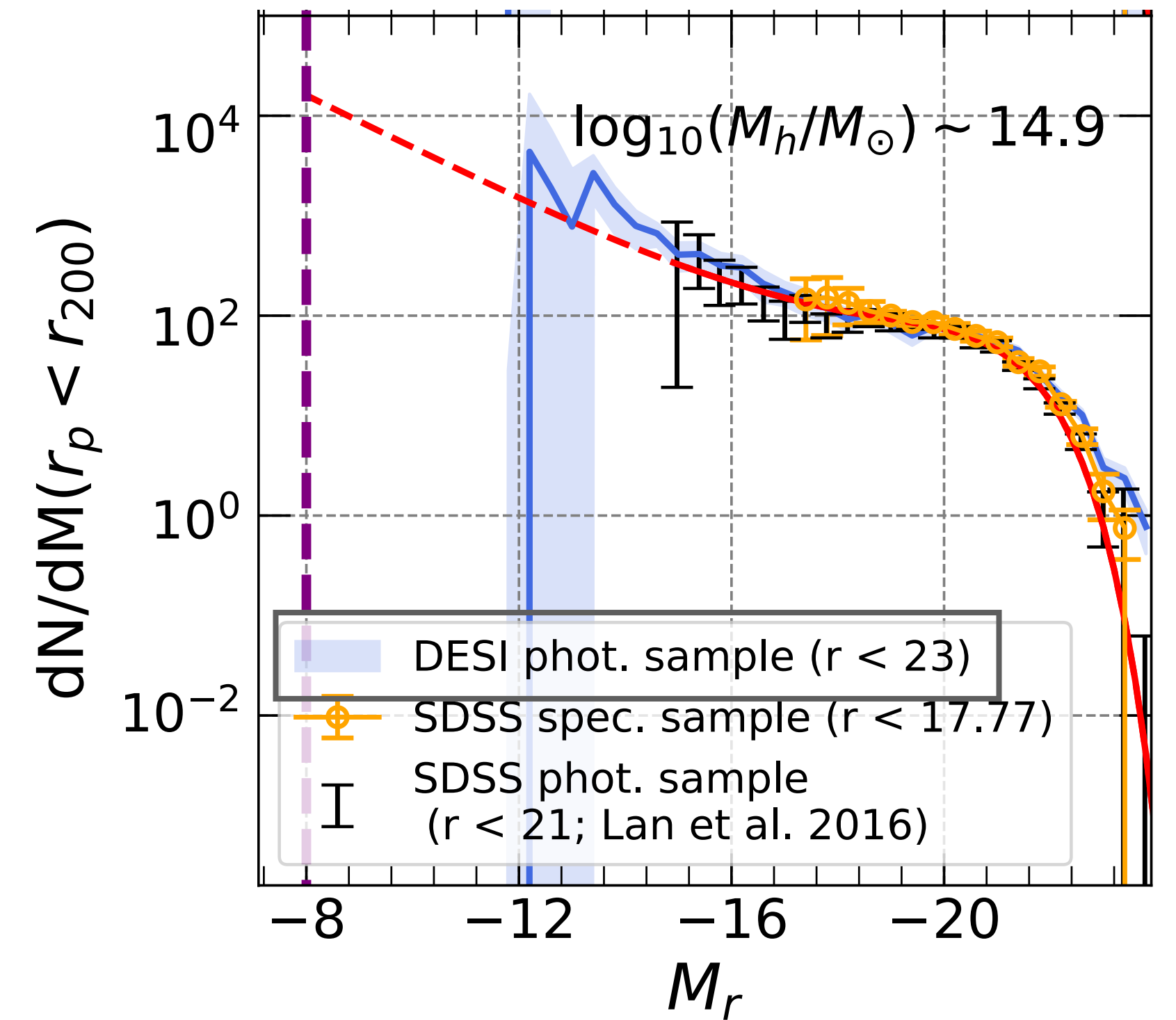
2. Mock survey at high redshift

- Test our method.
- Forecast for the next-generation survey.

1.1 unbiased two-point correlation function at high-z



1.2 Galaxy luminosity function in galaxy groups with DESI image



赵思逸

- 天文系直博一年级
- 茅奕老师组
- 21cm cosmology
- constrain primordial non-Gaussianity
- TAS

