Siuwang(Jacky) Chan

Hong Kong SAR xhchen@pmo.ac.cn

RESEARCH INTERESTS

Galaxy Evolution, **Galaxy Structure**, **High Redshift Galaxies**, **Chemical Abundances**

RESEARCH PROJECTS

Disclosing Submillimeter Galaxy Formation: Mergers or Secular Evolution?

- ✓ **Status**: **Under review (Independent Research Project)**
- ✓ **Purpose**: Investigate formation mechanisms of Sub-millimeter Galaxies (SMGs) using morphological diagnostic tools
- ✓ **Objects**: 125 SMGs in the PRIMER-COSMOS field
- ✓ **Methods**:
  1. Classification of different bulge types based on the bulge Sérsic index and the bulge-to-total-luminosity-ratio(New way)
  2. Non-parametric (CAS system, Gini-M20 plot);
  3. Stellar Bar Identification (Ellipse Fitting, Residual Inspection of Sérsic fitting)
- ✓ **Findings**:
  - No significant statistical differences between bright (SFR > $175 M_{\odot}/yr$) and faint (SFR < $175 M_{\odot}/yr$) SMGs via KS test in both bulge sersic index and B/T.
  - SMGs skew toward lower sersic but higher B/T shifting from the shorter band(F150W) to longer band(F444W).
  - SMGs with high B/T tend to have low bulge Sérsic , while the one with low B/T tends to have high bulge Sérsic , and the one from the start and the one from the start
  - Only 24% (24/101) show merger signatures in F277W using Gini-M20 plot , with 27% in the bright group and 24% in the faint group.
  - Using bugle Sérsic and B/T scheme , we find 4% merger-built bulges , 21% pseudo bulges , 16% of clump-migration bulge , and 48% of the unclassified bulge(with the vast majority of them having low bulge Sérsic($n < 1$) but high B/T($\sim 0.6 - 0.8$)).
- ✓ **Conclusion**: **Secular evolution takes precedence over mergers , in which merger acts only as a booster for star formation activities , suggesting that filamentary gas inflow plays a key role in bulge formation.**

Origins of SMGs via Metallicity Gradient

- ✓ **Status**: In Prep. (**Independent Research Project**)
- ✓ **Purpose**: Again, the origin of the submillimeter galaxies, but this time with the metallicity gradient via resolved sed fitting, still under heavy construction.
- ✓ **Methods**: Resolved SED fitting

EDUCATION

Msc (Astronomy) 2023-2026

University of Science and Technology of China, Hefei, People's Republic of China
Purple Mountain Observatory, CAS, Nanjing, People's Republic of China

- ✓ *GPA*: 3.37/4.3
- ✓ *Related coursework*:
  Galactic Astronomy, Radiative Processes in Astrophysics, Astronomical software and programming technology, Fundamental Astrophysics, Cosmology, Radio Astronomy, Statistical Methods in Astrophysics

Bsc (Physics) 2019-2023

Jilin Unversity, Changchun, People's Republic of China

- ✓ *Related coursework*:
  - Mathematics: advanced mathematics, linear algebra, probability theory.
  - Physics: Thermodynamics and statistical mechanics, electrodynamics, computational physics), mechanics, optics, thermodynamics, electromagnetism, theoretical mechanics, mechanical engineering, and physics. magnetism, theoretical mechanics.

CERTIFICATIONS & AWARDS

- ✓ Honorable Mention — The Mathematical Contest in Modeling(MCM)(2022)

SKILLS

Tech-related

- Python
- Linux Commands

Languages

- Chinese (Mandarin + Cantonese): Native
- English: Second language, fluent
- ✓ IELTS: Listening-7.5, Reading-8.5, Writing-7.0, Speaking-6.5
  Overall band Score-7.5
- ✓ CET4: 590, CET6: 589

Typesetting

- LaTeX: