

Chien-Ting Chen (陳建廷)

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Education

Postdoctoral Scholar, Astronomy and Astrophysics

The Pennsylvania State University, University Park PA (Aug 2015 - present)

Ph.D., Physics and Astronomy

Dartmouth College, Hanover, NH

June 2015

Dissertation: Supermassive Black Hole Accretion and Connections to Star Formation in Galaxies

Advisor: Professor Ryan Hickox (2011-2015)

Master of Science, Astronomy

National Tsing Hua University, Taiwan (NTHU)

June 2007

Thesis: The relativistic shockwave solutions in the collapse of singular isothermal sphere

Advisor: Dr. Mike J. Cai (2005-2007) *Bachelor of Science*, Physics

National Tsing Hua University, Taiwan (NTHU)

June 2005

Research Interests

1. Coevolution between galaxies and SMBHs
2. Galaxy evolution
3. AGN physics
4. Large scale structure

Research Experience

- I have extensive experience in analyzing multiwavelength data of galaxies and AGNs in wide-field extragalactic surveys. I have also developed Bayesian SED fitting tools using the Markov Chain Monte Carlo algorithm in IDL and Python to disentangle the AGN and host galaxy contributions to the observed fluxes.
- I have experience in X-ray data analysis of Chandra, XMM-Newton, Swift/XRT and NuSTAR observations. I am currently leading the data analysis and catalog production of the recently awarded 1.3 Ms XMM-Newton survey in the XMM-LSS field.
- I have 20 nights of observing experience in both of the 2.4m and 1.3m telescopes at MDM observatory, which includes photometric, multi-object and long-slit spectroscopic observations. I also have experience in reducing and analyzing optical spectra.
- I have theoretical background in the general relativistic framework of black hole formation. In my M.S. thesis, I developed numerical and analytical solutions to general relativistic sphere featuring inside-out shockwaves and the formation of a central BH.

Technical Skills

IDL, Python (astropy, scipy, numpy, pandas), XSPEC, CIAO, HEASoft, L^AT_EX

Selected Presentations

I have presented my research in 10 seminar/colloquium talks, I have also participate conferences through 10s contributed talk and 4 poster presentations as of Oct 2016.

Contributed talk, 2016.8 “A NuSTAR selected sample of AGNs in low-mass galaxies”, Hidden Monsters: Obscured AGN and connections to galaxy evolution workshop, Hanover, NH, USA

Dissertation talk, 2015.1 “AGN accretion, obscuration and star formation in luminous galaxies”, 225th AAS meeting, Seattle, WA, USA

Contributed talk, 2014.7 “Obscuration and star formation in luminous quasars”, AGN vs SF workshop, Durham, UK

Poster, 2014.5, “The links between AGNs and the star formation in their host galaxies”, Multiwavelength-surveys: Galaxy Formation and Evolution from the early universe to today Dubrovnik, Croatia

Contributed talk, 2013.10, “A correlation between star formation rate and average black hole accretion in star forming galaxies”, IAU symposium: Multiwavelength AGN Surveys and Studies, Yerevan, Armenia

Talk, 2012.11, “Probing the hidden AGN activities in star-forming galaxies”, Special seminar, Academia Sinica Institute of Astronomy and Astrophysics, Taiwan

List of Publications

Refereed Publications

First Author

Chen, Chien-Ting et al. ; A Correlation between Star Formation Rate and Average Black Hole Accretion in Star-forming Galaxies. *The Astrophysical Journal*, v. 773, Issue 1, article id. 3 (2013).

Chen, Chien-Ting et al., A connection between obscuration and star formation in luminous quasars. *The Astrophysical Journal*, v. 802, Issue 1, article id. 50. (2015).

Chen, Chien-Ting et al., A NuSTAR selected sample of AGNs in low-mass galaxies, *submitted to ApJ* (2016.10)

Chen, Chien-Ting et al., The X-ray and mid-IR luminosities in luminous type 1 quasars, *submitted ApJ* (2016.08)

Co-author

1. Lansbury et al., 2016. The NuSTAR Serendipitous Survey: The 40 month catalog and the properties of the distant high energy X-ray source population *Submitted to ApJ*.

2. Brightman et al., 2016. A Growth-rate Indicator for Compton-thick Active Galactic Nuclei. *The Astrophysical Journal*, v. 826, Issue 1, article id. 93

3. Hainline, Hickox & Chen et al. A Tale of Two Narrow-Line Regions: Ionization, Kinematics, and Spectral Energy Distributions for a Local Pair of Merging Obscured Active Galaxies. *The Astrophysical Journal*, v. 823, Issue 1, article id. 42.

4. Lamassa et al., 2016. Peering Through the Dust: NuSTAR Observations of Two FIRST-2MASS Red Quasars *The Astrophysical Journal*, v. 820, Issue 1, article id. 70.

5. Peterson et al. 2014. Reverberation Mapping of the Seyfert 1 Galaxy NGC 7469. *The Astrophysical Journal*, Volume 795, Issue 2, article id. 149.

6. Hickox et al. 2014. Black hole variability and the star formation-AGN connection: Do all star-forming galaxies host an AGN? *The Astrophysical Journal*, Volume 782, Issue 1, article id. 9.

7. Milisavljevic et al. 2013. SN 2012au: A Golden Link between Superluminous Supernovae and Their Lower-luminosity Counterparts. *The Astrophysical Journal Letters*, v. 770, Issue 2, article id. L38.

8. Grier et al. 2013. The Structure of the Broad-line Region in Active Galactic Nuclei. I. Reconstructed Velocity-delay Maps. *The Astrophysical Journal*, v. 764, Issue 1, article id. 47.

9. Grier et al. 2013. Reverberation Mapping Results for Five Seyfert 1 Galaxies. *The Astrophysical Journal*, v. 755, Issue 1, article id. 60.

10. Grier et al. 2012. A Reverberation Lag for the High-ionization Component of the Broad-line Region in the Narrow-line Seyfert 1 Mrk 335. *The Astrophysical Journal Letters*, v. 744, Issue 1, article id. L4.

Work in progress and Conference Proceedings

Work in Progress

Yang, Guang; **Chen, Chien-Ting et al.** Black holes grow more efficiently in massive galaxies (in preparation.)

Chen, Chien-Ting et al. The SERVS-XMM-LSS Survey (in preparation).

Conference Proceedings

Chen, Chien-Ting and Hickox, Ryan, A correlation between star formation rate and average black hole accretion rate in star forming galaxies. Conference proceedings for IAU Symposium No. 304: Multiwavelength AGN Surveys and Studies

Teaching and Public Outreach

Guest Lecturer

Astro 550: High-Energy Astrophysics, PSU (2016)

Astro 485: Introduction to High-Energy Astronomy, PSU (2015)

ASTR 117 Interstellar Astrophysics, Dartmouth College (2015)

Teaching Assistant

PHYS 013 Introductory Physics I, II

ASTR 117 Interstellar Astrophysics

ASTR 002/003 Exploring the Universe

ASTR 001 Solar System General Physics Lab I, II (NTHU, Taiwan)

Public Outreach

Public Observing at Dartmouth College (2010-2012, for general public)

Public Lectures at Moultonborough Science Club, NH (2012, for elementary school students)

Public Lectures at NTHU Astronomy Club(2003, for high school students)

Research Grants and Awards

Dartmouth Teaching Fellowship (2009-2012)

NASA Space Grant Graduate PhD Award (\$1,500, Dartmouth-New Hampshire, 2014)

William H. Neukom 1964 Institute for Computational Science Graduate Fellowship (\$ 27,720, 2014-2015)

Graduate Research Award, Dartmouth College, 2015 (Physics and Astronomy)

Neukom Prize for Outstanding Graduate Research in Computational Science, 2015

XMM-Newton cycle 15 (PI: W. N. Brandt): “Going Beyond COSMOS with the XMM-SERVS Survey of W-CDF-S, XMM-LSS, and ELAIS-S1 ”

Hobby-Eberly Telescope LRS2 Shared-risk proposal (PI: J. Trump): “Spatially Resolving the Fossil Record of Black Hole Seeds”

Chandra cycle 18 (PI: R. Hickox): “The Chandra Deep Wide-Field Survey: Completing the new generation of Chandra extragalactic surveys”

Activities and Service

NuSTAR science working groups (obscured AGN; extragalactic surveys)

Member of the X-ray Surveyor Science and Technology Definition Team

(Evolution of Structure and AGN populations Science Working Group). Member of the LOC, the Black hole Feedback Workshop, Dartmouth College, 2012

Astronomy journal club organizer, Dartmouth College, 2012-2013

Referee of Monthly Notices of the Royal Astronomical Society, 2014-

Referee of the Astrophysical Journal, 2015-

References

- Professor W. Niel Brandt
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- Professor Dave Alexander
Durham University, County Durham DH1, UK
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- Professor Ryan Hickox
Dartmouth College, Hanover 03755, USA
Ryan.C.Hickox@dartmouth.edu +1-603-646-2962
- Professor Alexandra Pope
University of Massachusetts, Amherst, MA 01003, USA
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