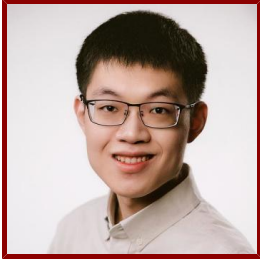


# Stanford

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## Zhefu Yu

Postdoctoral Scholar, Physics

 Curriculum Vitae available Online

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### Bio

#### BIO

I studied in Peking University during 2013 - 2017 and got my bachelor's degree in astronomy in 2017. I was then enrolled in the graduate program in astronomy in The Ohio State University and got my PhD degree in 2023. I am now a postdoc fellow in the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC) in Stanford University.

#### STANFORD ADVISORS

- Steven Allen, Postdoctoral Faculty Sponsor

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### Research & Scholarship

#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research aims to understand how supermassive black holes (SMBHs) grow over cosmic time, one of the key questions in astrophysics.

I have done substantial work in accurately measuring the mass of SMBHs through reverberation mapping (RM). In particular, I derived a new relationship between the radius of the Mg II broad line region and the continuum luminosity of the active galactic nuclei (AGN) based on the OzDES RM project, which is critical for SMBH mass measurements and demographic studies in cosmic noon – the peak of AGN activity. I have also done extensive work in understanding the accretion physics in both AGN and quiescent SMBHs.

Now my work focuses on better understanding the accretion onto SMBHs, the major path of SMBH growth. I collaborate closely with the XOC group and the Rubin LSST team in KIPAC. My research probes the inner most region of the AGN accretion disk through joint analysis of the X-ray spectral and timing data. I will also probe the accretion disk through time domain analysis of the LSST data in the near future.

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### Publications

#### PUBLICATIONS

- **OzDES Reverberation Mapping Programme: Mg II lags and R-L relation** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Yu, Z., Martini, P., Penton, A., Davis, T. M., Kochanek, C. S., Lewis, G. F., Lidman, C., Malik, U., Sharp, R., Tucker, B. E., Agüena, M., Annis, J., Bertin, et al  
2023; 522 (3): 4132-4147
- **OzDES Reverberation Mapping Program: H beta lags from the 6-yr survey** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Malik, U., Sharp, R., Penton, A., Yu, Z., Martini, P., Lidman, C., Tucker, B. E., Davis, T. M., Lewis, G. F., Agüena, M., Allam, S., Alves, O., Andrade-Oliveira, et al  
2023; 520 (2): 2009-2023

- **Accretion disks, quasars and cosmology: meandering towards understanding** *ASTROPHYSICS AND SPACE SCIENCE*  
Czerny, B., Cao, S., Jaiswal, V., Karas, V., Khadka, N., Martinez-Aldama, M., Naddaf, M., Panda, S., Nunez, F., Prince, R., Ratra, B., Sniegowska, M., Yu, et al  
2023; 368 (2)
- **Observational window effects on multi-object reverberation mapping** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Malik, U., Sharp, R., Martini, P., Davis, T. M., Tucker, B. E., Yu, Z., Penton, A., Lewis, G. F., Calcino, J.  
2022; 516 (3): 3238-3253
- **An X-ray view of the ambiguous nuclear transient AT2019pev** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Yu, Z., Kochanek, C. S., Mathur, S., Auchettl, K., Grupe, D., Holoiien, T.  
2022; 515 (4): 5198-5210
- **OzDES reverberation mapping program: Lag recovery reliability for 6-yr C iv analysis** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Penton, A., Malik, U., Davis, T. M., Martini, P., Yu, Z., Sharp, R., Lidman, C., Tucker, B. E., Hoormann, J. K., Agüena, M., Allam, S., Annis, J., Asorey, et al  
2022; 509 (3): 4008-4023
- **Standardizing reverberation-measured Mg II time-lag quasars, by using the radius-luminosity relation, and constraining cosmological model parameters** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Khadka, N., Yu, Z., Zajacek, M., Martinez-Aldama, M., Czerny, B., Ratra, B.  
2021; 508 (4): 4722-4737
- **OzDES Reverberation Mapping Programme: the first Mg II lags from 5 yr of monitoring** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Yu, Z., Martini, P., Penton, A., Davis, T. M., Malik, U., Lidman, C., Tucker, B. E., Sharp, R., Kochanek, C. S., Peterson, B. M., Agüena, M., Allam, S., Andrade-Oliveira, et al  
2021; 507 (3): 3771-3788
- **Faint Active Galactic Nuclei Favor Unexpectedly Long Inter-band Time Lags** *ASTROPHYSICAL JOURNAL LETTERS*  
Li, T., Sun, M., Xu, X., Brandt, W. N., Trump, J. R., Yu, Z., Wang, J., Xue, Y., Cai, Z., Gu, W., Homayouni, Y., Liu, T., Wang, et al  
2021; 912 (2)
- **OzDES multi-object fibre spectroscopy for the Dark Energy Survey: results and second data release** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Lidman, C., Tucker, B. E., Davis, T. M., Uddin, S. A., Asorey, J., Bolejko, K., Brout, D., Calcino, J., Carollo, D., Carr, A., Childress, M., Hoormann, J. K., Foley, et al  
2020; 496 (1): 19-35
- **On reverberation mapping lag uncertainties** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Yu, Z., Kochanek, C. S., Peterson, B. M., Zu, Y., Brandt, W. N., Cackett, E. M., Fausnaugh, M. M., McHardy, I. M.  
2020; 491 (4): 6045-6064
- **Quasar Accretion Disk Sizes from Continuum Reverberation Mapping in the DES Standard-star Fields** *ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES*  
Yu, Z., Martini, P., Davis, T. M., Gruendl, R. A., Hoormann, J. K., Kochanek, C. S., Lidman, C., Mudd, D., Peterson, B. M., Wester, W., Allam, S., Annis, J., Asorey, et al  
2020; 246 (1)
- **C IV black hole mass measurements with the Australian Dark Energy Survey (OzDES)** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Hoormann, J. K., Martini, P., Davis, T. M., King, A., Lidman, C., Mudd, D., Sharp, R., Sommer, N. E., Tucker, B. E., Yu, Z., Allam, S., Asorey, J., Avila, et al  
2019; 487 (3): 3650-63
- **The Sloan Digital Sky Survey Reverberation Mapping Project: Quasar Host Galaxies at  $z < 0.8$  from Image Decomposition** *ASTROPHYSICAL JOURNAL*  
Yue, M., Jiang, L., Shen, Y., Hall, P. B., Yu, Z., Schneider, D. P., Ho, L. C., Horne, K., Petitjean, P., Trump, J. R.  
2018; 863 (1)