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# 国台学术报告 NAOC COLLOQUIUM

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**Time: Wednesday 2:30 PM, Oct. 19      Location: A601 NAOC**

## **A Good Hard Look at Growing Supermassive Black Holes in the Distant Universe**

**Prof. William Nielsen Brandt**

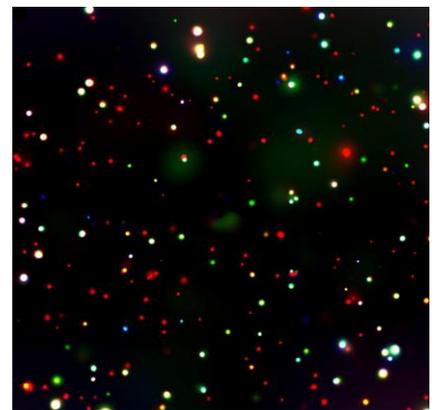
**Department of Astronomy & Astrophysics, Pennsylvania State University , USA**



Prof. William Nielsen Brandt has been at Penn State since 1997 and is currently a professor in the Department of Astronomy & Astrophysics. Previously he was a postdoctoral fellow at the Harvard-Smithsonian Center for Astrophysics and a graduate student at the University of Cambridge. Brandt uses X-ray satellites, including the Chandra X-ray Observatory, the X-ray Multi-Mirror Mission-Newton, and the Nuclear Spectroscopic Telescope Array (NuSTAR), to study the physics, evolution, and ecology of active galaxies and other cosmic X-ray sources. He is an author of more than 440 research papers and leads a small research group including postdoctoral researchers, graduate students, and undergraduate students. He also regularly teaches courses on high-energy astrophysics, black holes, and active galaxies.

### **Abstract**

Sensitive cosmic X-ray surveys with the Chandra, XMM-Newton, and NuSTAR observatories have revolutionized our ability to find and study distant active galactic nuclei (AGNs), the main sites of supermassive black hole growth in the Universe. I will describe some of the resulting discoveries about the demographics, physics, and ecology of AGNs. Topics covered will include the utility of deep X-ray plus multiwavelength surveys for investigating distant AGNs; evolution constraints for the typical AGNs of the distant Universe; the cosmic balance of power between supermassive black holes and stars; interactions between AGNs and their hosting galaxies; and the AGN content of newly forming galaxies. I will end by discussing some key outstanding questions and new observations and missions that aim to answer them.



*All are welcome! Tea, coffee, biscuits will be served at 2:15 PM.*