日本天文学会早川幸男基金渡航報告書

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職あるいは学年	D2
任期 (再任昇格条件)	
渡航目的	研究集会でのポスター発表
講演・観測・研究題目	The Obscured Fraction of Luminous X-ray AGN at the Peak of the Cosmic Accretion Growth
渡航先 (期間)	ギリシャ国 (2022 年 7 月 14 日〜7 月 26 日)

From July 16th to 24th I had the opportunity to attend the COSPAR 2022 44th scientific assembly in the city of Athens, Greece. COSPAR scientific assembly is an international conference focused on scientific research using space-based facilities. A large section is devoted to astrophysical research using space telescopes with several parallel subsections focused on specific themes of astrophysics. I was assigned a slot in the poster session on July 19th and 20th as part of the E1.11 session (Supermassive Black holes at high redshift).

図 1: Conference atmosphere

I joined several panels in astrophysics research from space. Specifically, Supermassive black holes at high redshift (E1.11), COSPAR-22-E1.18: Twenty Years of AGN Discoveries with Space Observations: Main Results and Perspectives on AGN in the High-energy Sky (E1.18), and Signatures of Cosmic Black Holes (E1.4). Several well-known experts in X-ray, infrared, and radio AGN studies attended these sessions.

Although the poster session is separated from the oral presentation, I had the opportunity to discuss with other researchers about my research during break times. A heavily discussed topic is the population of obscured AGN at high redshift. This is directly related to my research on the obscured fraction of luminous quasars. It was suggested that more than 90% of high redshift AGN are obscured by large amounts of gas and dust thus most high redshift AGN are missed from even the deepest X-ray surveys. The importance of large and deep multiwavelength survey areas such as the XMM-SERVS (which was presented in my research) was also highlighted in order to search for obscured AGN at high redshift using multiwavelength AGN signatures. A consensus from the discussion was that determination of the amount of absorption in AGNs based on the X-ray hardness ratio may not be highly accurate. Thus, X-ray spectral analysis or addition tracers of AGN luminosity are needed to determine the amount of obscuration, especially for heavily obscured sources. This feedback from the discussion will be incorporated into my future research.
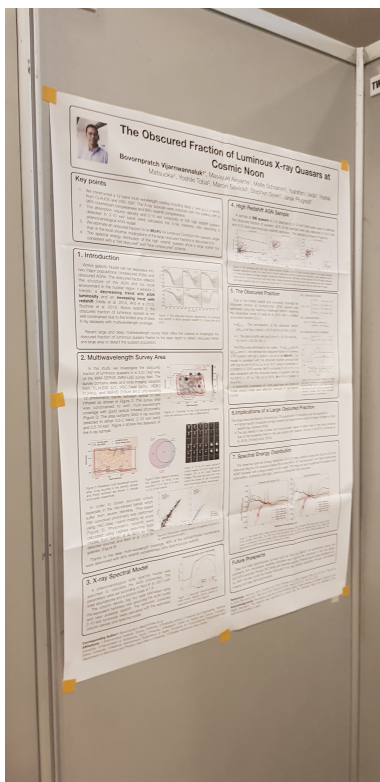
図 2: My poster

During the conference, I met another PhD. student from Italy who is working on the obscured fraction of AGN using X-ray spectral analysis. Although different methods were used in our research, the results were comparable to each other. We had the opportunity to discuss our work and exchange contact information. In addition, I also made friends with another student from the United kingdom working on theoretical simulations of AGN obscuration and a post-doctoral researcher from Chile who is leading an X-ray AGN survey in the local universe. We had a very fruitful discussion of the physics and evolution of AGN obscuration. This perhaps was the highlight of my experience in COSPAR 2022.

In the end, I believe I gained a valuable experience at the COSPAR 2022 scientific assembly and made several connections to researchers outside Japan which is valuable for my future career development. If possible, I look forward to joining the COSPAR 2024 conference which will be held in Korea.