

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	特任研究員
任期 (再任昇格条件)	3 年 (再任 1 回限り)
渡航目的	研究集会での口頭発表
講演・観測・研究題目	Dynamics of Binary Planets within Star Clusters
渡航先 (期間)	アメリカ合衆国 (2024 年 10 月 6 日～10 月 11 日)

With the generous support of the Hayakawa Fund, I had the privilege of attending the 56th AAS Division for Planetary Sciences (DPS) Meeting in Boise, Idaho, from October 6 to 10, 2024. This experience was invaluable for my research and provided numerous opportunities to present my work, engage with leading experts, and build connections within the planetary science community.

I arrived in Boise on October 6, just as the meeting commenced. My oral presentation, titled “Dynamics of Binary Planets within Star Clusters,” was scheduled in the morning of October 7 as part of the “106 - Exoplanet Dynamics and Census” session. The presentation went smoothly, and during the Q&A session, I received two insightful questions. One question asked about the potential role of tidal forces during stellar flybys and whether they should be considered in my models. Another question concerned the discovery of JuMBOs (Jupiter-Mass Binary Objects) and why they have only been found in the Trapezium Cluster. These questions stimulated engaging discussions and provided fresh perspectives on the implications of my work.

After my presentation, I had meaningful conversations with several researchers who share a similar interest. Notably, I connected with Stephen Kane from the University of California, Riverside, Gongjie Li from the Georgia Institute of Technology, and Xing Wei from Beijing Normal University. Gongjie Li expressed particular interest in my work, as she is conducting similar simulations on the formation of binary planets, opening up the possibility of future collaboration. These interactions were particularly valuable for expanding my understanding of binary planet dynamics and exploring new ideas for future research.

In addition to my presentation, I served as a session chair for the “109 - Centaurs TNOs: Dynamics” session. During this session, Charles Chen from the Academia Sinica Institute of Astronomy and Astrophysics (ASIAA) presented the discovery of the 4th Sedna-like body by the FOSSIL collaboration, a project in which I was directly involved. I contributed to the analysis of this distant object’s dynamics, demonstrating its stability

over the age of the Solar System. The presentation was well received, and the discovery sparked significant discussions about the possible origins of these distant objects and the early dynamical processes of the Solar System.

Throughout the meeting, I also had the opportunity to connect with several Japanese astronomers, including 小林 仁美 from PHOTOCROSS and 河北 秀世 from Kyoto Sangyo University. Both are conducting research on comets, and we had productive discussions on potential collaborations. We also explored the possibility of me visiting their research institute in Kyoto this December, where I could contribute to their ongoing studies on comet dynamics and share insights from my work on binary planets.

Overall, the AAS DPS 2024 Meeting was a highly productive and enriching experience. It not only allowed me to present my research on binary planets to a wider audience but also provided numerous opportunities to engage with leading experts in the field. I am particularly grateful for the connections I made, as these interactions will help shape the future direction of my research and open doors to potential collaborations. The discussions and feedback I received have already started to refine my work, and the networking opportunities will likely result in continued collaborations.

I am deeply appreciative of the support from the Hayakawa Fund, which made my participation in this important meeting possible. This experience has significantly advanced my research and allowed me to become more integrated into the Japanese and the international planetary science community.