Awardee of the "CRC-Spin Award 2025"

The Core Research Cluster for Spintronics at Tohoku University ("CRC-Spin") and the Center for Science and Innovation in Spintronics (CSIS) have launched the Core Research Cluster for Spintronics Award (CRC-Spin Award) since 2023 to honor early career researchers who have produced outstanding academic achievements and/or industrial applications in Spintronics in a broad definition of the field. The award ceremony and lecture will be held at the International Symposium MSSp 2025 (the 9th Symp. for the Core Research Clusters for Materials Science and Spintronics and the 8th Symp. on Int'l Joint Graduate Program in Materials Science and Spintronics).

Dr. Jiahao Han

(Center for Science and Innovation in Spintronics, Tohoku University)

for the "Manipulating magnon transmission and quantum geometry by spin textures"

Spin textures bring rich opportunities to unveil intriguing spintronic phenomena and design spintronic devices for memory, computing, and signal processing.

By interacting spin waves (magnons) and electronic eigenstates with various spin textures (e.g., magnetic domain wall, antiferromagnetic order), Dr. Jiahao Han developed original concepts and approaches that excited several frontiers of spintronics with coherent, antiferromagnetic, and topological features, showing broad impact in condensed-matter physics and spintronics. The specific achievements include:

- Demonstrating room-temperature flexible manipulation of the quantum metric in a topological chiral antiferromagnet [1].
- Discovering a characteristic response of the octupole moment in Mn3Sn to spin-orbit torque [2].
- Summarizing an emerging frontier "coherent antiferromagnetic spintronics" as the cutting-edge progress in spintronics [3]

[1] J. Han* et al., *Nature Physics*, **20**, 1110-1117 (2024).

[2] J.-Y. Yoon, J. Han* et al., *Nature Materials*, **22**, 1106-1113 (2023).

[3] J. Han* et al., *Nature Materials*, **22**, 684-695 (2023).

(* Corresponding author)

Congratulations!