



Awardee of the “CRC-Spin Award 2026”

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 award lecture will be held at the International Symposium MSSp 2026 (the 10th Symp. for the Core Research Clusters for Materials Science and Spintronics and the 9th Symp. on Int’l Joint Graduate Program in Materials Science and Spintronics).



Dr. Jun Ishihara

(Graduate School of Engineering, Tohoku University)

for the “Electron spin textures in semiconductors: visualization, control, and spatial light–spin conversion”

Electron spin textures in semiconductors, including the persistent spin helix (PSH), offer new possibilities for information processing through their spatial structures and dynamics. In the PSH state, the spin texture forms a coherent spatial pattern characterized by wavelength, amplitude, and phase, enabling the spin texture itself to carry rich information.

Dr. Jun Ishihara has developed optical techniques for visualizing and controlling electron spin textures in semiconductor quantum wells. He has further developed spatial light–spin conversion, directly linking the spatial structures of light and electron spins and enabling programmable generation of spin textures. The specific achievements include:

- Direct visualization of the persistent spin helix and electrical control of its wavelength in GaAs/AlGaAs quantum wells [1].
- Demonstration of imprinting the spatial polarization structure of vector vortex beams onto electron spin textures [2].
- Programmable generation of arbitrary spin helices using structured light, enabling control of their period and orientation [3].

[1] J. Ishihara et al., *Applied Physics Express* **7**, 013001 (2014).

[2] J. Ishihara* et al., *Physical Review Letters* **130**, 126701 (2023).

[3] K. Kikuchi, J. Ishihara* et al., *Physical Review Applied* **23**, 044017 (2025).

(* Corresponding author)

Congratulations!