



# Awardee of the “CRC-Spin Award 2024”

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 given at the 8th Symp. for the Core Research Clusters for Materials Science and Spintronics and the 7th Symp. on Int’l Joint Graduate Program in Materials Science and Spintronics.



## Dr. Keita Ito

(Institute for Materials Research, Tohoku University)

### for the “Development of spintronics materials based on ferromagnetic nitrides”

For spintronics to contribute to a sustainable society, it is essential to further improve functionality and to simultaneously be an environmental-friendly technology. This requirement imposes a task to find highly functional ferromagnetic materials composed of resource-rich elements.

Dr. Keita Ito has focused on the versatile properties of ferromagnetic nitrides, particularly  $\text{Fe}_4\text{N}$ . He has carried out comprehensive experimental research exploiting high-quality nitride films prepared by molecular beam epitaxy technique, well-controlled device structures by microfabrication technique and the characterization of electronic structures utilizing the synchrotron radiation [1]. The specific achievements include:

- Development of  $L1_0$ -FeNi thin films with high magnetic anisotropy and high degree of order by denitrating FeNiN [2,3].
- Highly efficient thermoelectric conversion based on anomalous Nernst effect for the  $\text{Fe}_4\text{N}$  films epitaxially grown on  $\text{SrTiO}_3$  substrates [4].

[1] K. Ito et al., Nanotechnology 33, 062001 (2022).

[2] K. Ito et al., Applied Physics Letters 116, 242404 (2020).

[3] K. Ito et al., Journal of Alloys and Compounds 946, 169450 (2023).

[4] K. Ito et al., Journal of Applied Physics 132, 133904 (2022).

## Congratulations!