

ICR-iJURC Short-Term Exchange Program Report

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I visited Professor Ono's group at the Institute of Chemical Research, Kyoto University, for seven weeks as part of a research collaboration funded by the ICR-iJURC short-term exchange program. During my stay, I ran many successful experiments and gained valuable insights into my material system, thanks in large part to the technical support of Professor Karube, Professor Shiota, and graduate students Susumu Hirata and Tetsuma Mandokoro.

The goal of this research was to investigate a large thermally-driven magnetoresistance originating from the metal–substrate interface in metallic thin films grown on pure silicon substrates. In preparation, I fabricated micron-scale Hall bars with several different material stack structures on Si and SiO₂ substrates. In Professor Ono's lab, I measured the longitudinal and transverse resistance of these samples using the PPMS3 and DynaCool systems while varying the applied field, angle, and temperature. Field sweeps across the different samples established the nonmagnetic nature of our signal, while the angular and temperature dependence allowed us to distinguish the ordinary Nernst and magnetoresistance contributions to the measured signal.

Beyond my work in the lab, I am grateful for the opportunity to participate in the group's social activities and get to know each of the members in a more informal setting. I particularly enjoyed the summer trip to Fukui Prefecture, where we stayed at a traditional Japanese inn, shared many great meals together, and visited the famous dinosaur museum. I also enjoyed several solo weekend excursions, including attending the Koshien tournament, exploring Hiroshima, and hiking Mt. Ikoma.

I would like to thank Professor Ono, Professor Karube, Professor Shiota, Ms. Tanaka, and all of the group members for their warm welcome and support throughout my stay.

