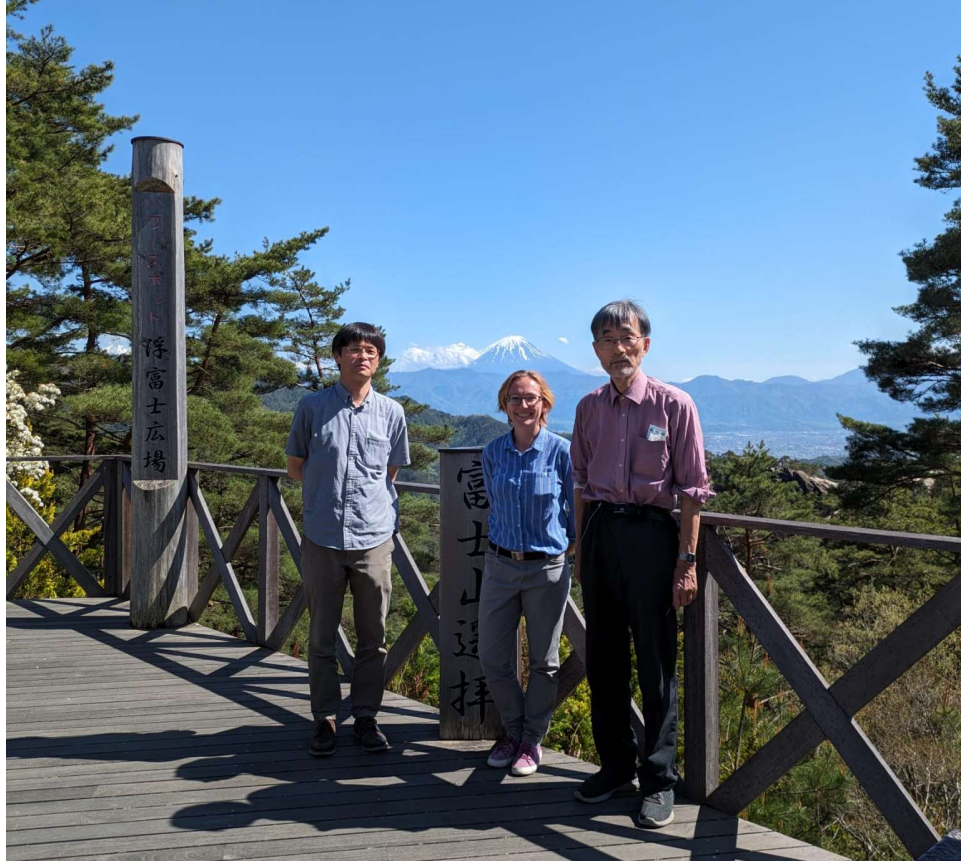


JSPS BRIDGE Fellowship Report – Stephanie Rankin-Turner, Ph.D.

Date: 20 July 2024

From 28th March 2024 to 26th April 2024, I was hosted by Professor Satoshi Ninomiya at the University of Yamanashi in Kofu as part of the JSPS BRIDGE fellowship. Throughout my fellowship, I worked closely with Professor Ninomiya alongside Professor Kenzo Hiraoka (emeritus professor at the University of Yamanashi) on several ambient ionization mass spectrometry projects. First, we utilized a heat pulse desorption mass spectrometry (HPD-MS) with AC corona discharge method for the rapid analysis of non-volatile samples. We evaluated the method for the analysis of pharmaceutical products, illicit drugs, explosives, and human skin samples. We demonstrated the technique to be a useful tool for the rapid desorption and analysis of a broad range of biological and synthetic materials. Next, we evaluated a new robotic system for the automated analysis of samples by sheath flow probe electrospray ionization mass spectrometry (sfPESI). Using this technique, we investigated the possibility of achieving automated single-point sampling and imaging of solid and liquid materials. The technique was applied to a broad range of sample types, including plants, food, insecticides, and human biological samples. We are currently analyzing the collected data for subsequent publication in 1-2 peer-reviewed journal articles.

I first visited the University of Yamanashi in 2018 as a graduate student after I was fortunate enough to receive a JSPS summer fellowship, and I am grateful to JSPS for continuing to support our research collaboration. The JSPS BRIDGE fellowship program enabled us to strengthen our ongoing collaboration, collect valuable data, and develop new ideas for future research projects. I was furthermore able to meet with new researchers and students outside of my host's lab, expanding my network of fellow researchers in Japan. I look forward to continuing my collaboration with researchers at the University of Yamanashi and beyond.



Professor Satoshi Ninomiya (left), myself (center), and Professor Kenzo Hiraoka at the top of Shosenkyo Gorge in Kofu, Yamanashi in front of Mt. Fuji.