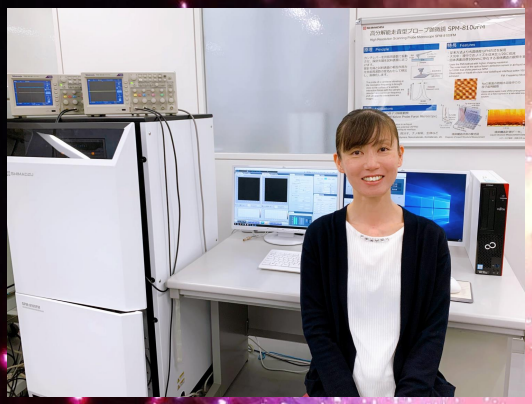
Open Seminar

“Liquid lubricants over iron oxides: A frequency-modulation atomic force microscopy analysis combined with friction test”

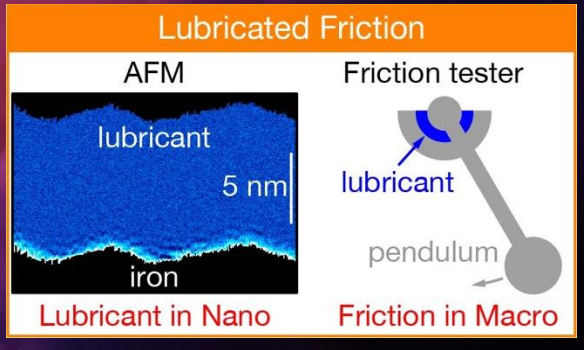


Dr. Shiho Moriguchi
(Kobe University & Shimadzu Techno Research Inc.)

Registration

October 13th, 2022, PM 4:00 ~ 5:00 (JST)

Lecture by English
Hybrid Seminar (onsite & online)
room 301, IMS main office building (onsite) & Zoom meeting (online)
https://registration.ims.ac.jp/openseminar1013



Modifiers mixed into liquid lubricants form an adsorbed layer on the solid surface to prevent wear and reduce friction of sliding. Controlling the adsorption of modifiers on solid surfaces is the key to smooth sliding. However, even today, it is not easy to characterize the adsorbed layer of modifiers, especially those with nanometer-scale thickness in liquid lubricants. With atomic-scale spatial resolution and 10 pN-order force sensitivity in liquids, frequency-modulation atomic force microscopy (FM-AFM) is a powerful tool for molecular-scale analysis of modifier layers. In this talk, nanometer-scale force spectroscopy of modifiers over oxidized iron will be presented in combination with macroscopic friction coefficient evaluated by friction testers.

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