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The investigation of contact line effect on nanosized droplet wetting behavior with solid temperature condition¹ LEE HAEGON, LEE JOON-SANG, Yonsei Univ. — In many multi-phase fluidic systems, there are essentially contact interfaces including liquid-vapor, liquid-solid, and solid-vapor phase. There is also a contact line where these three interfaces meet. The existence of these interfaces and contact lines has a considerable impact on the nanoscale droplet wetting behavior. However, recent studies have shown that Young's equation does not accurately represent this behavior at the nanoscale. It also emphasized the importance of the contact line effect. Therefore, We performed molecular dynamics simulation to imitate the behavior of nanoscale droplets with solid temperature condition. And we find the effect of solid temperature on the contact line motion. Furthermore, We figure out the effect of contact line force on the wetting behavior of droplet according to the different solid temperature condition. With solid temperature condition variation, the magnitude of contact line friction decreases significantly. We also divide contact line force by effect of bulk liquid, interfacial tension, and solid surface.

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