

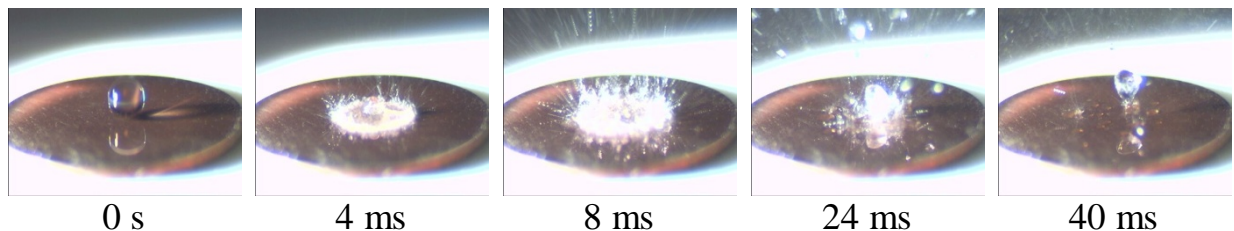
## Effect of surface condition on liquid-vapor phase change

Masamichi Kohno

Department of Mechanical Engineering, Thermophysical Properties Division

Many engineering applications characterized by heat fluxes involve boiling and condensation (phase-change phenomena). The rational designs of many components require that the associated phase change processes should be well understood. Therefore, understanding the effect of surface properties (wettability, roughness and thermal properties) on heat and mass transfer characteristics at the interface in the liquid-vapor phase change process is one of the main research issues in the thermophysical properties division.

In this presentation, our two recent researches will be introduced briefly. One of them is “Effects of droplet diameter, surface roughness and impinging velocity on the behavior of droplet impinging onto a hot surface”. The other one is “Change in surface property and wettability of SUS304 by heating and cooling”. Surface analysis of SUS304 steel samples will be discussed here in order to study the effect of thermal cycle on wettability.



Behavior of water droplet impinging onto a heated surface.  
(Contact angle 4 °, Droplet Diameter = 2.4 mm, Surface Temp. = 165 °C)