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Leidenfrost drops and micro-particles: organization and evaporation LAURENT MAQUET, Université de Liège, PIERRE COLINET, Université Libre de Bruxelles, STÉPHANE DORBOLO, Université de Liège — We investigate the behavior of hydrophilic microparticles dropped into Leidenfrost drops. These particles appears to go through the drop until they reach the bottom surface of the drop where they are dewetted. Due to the evaporation of the drop, the surface of the drop decreases. Thus, the particles that are trapped at the surface of the drop due to the dewetting begin to cover more and more the drop. At a point, they even cover the whole surface of the drop. The superficial density of the particles at the surface is ~ 0.8 and the fraction of the beads that stay trapped at the surface until the cover is complete is always larger than 0.7. We measured evaporation rates and compared the case of drops with and without particles. These evaporation rates are always decreased by the presence of the particles. This is due to the dewetting. Indeed, the effective surface of evaporation is decreased by the presence of particles at the surface. Thus, knowing how the evaporation is affected by the presence of the particles, we can measure contact angles at the lower surface of these levitating drops.

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