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The Role of Drag Force in Shedding of Multiple Sessile Drops. AYSAN RAZZAGHI, SAYYED HOSSEIN BANITABAEI, ALIDAD AMIRFAZLI, York University, - TEAM — A sessile drop placed on a solid surface can shed, if the drag force due to a shearing airflow overcomes the drop adhesion to the surface. Sessile drop shedding is of importance due to its applications in condensation, fuel cells, icing, etc. Majority of the studies so far have considered the shedding of a single sessile droplet; however, in the applications above, multiple sessile droplets appear on a surface. Shedding of sessile drops in different arrangements, i.e. tandem, side by side, triangle, and rectangle have been investigated both experimentally and through VOF simulations. The minimum air velocity (Ucr) at which the drop(s) at the upstream dislodge from the surface was measured. Drops were placed in a wind tunnel with increasing air velocity at a rate of $1m/s^2$. It has been found that Ucr, deviates from its value for a single drop due to presence of the neighboring drops. The amount of the deviation is closely related to the flow pattern and interaction of drop wakes which are elucidated numerically. The interacting wakes change the drag force on the drops. Generally, the adhesion force is not affected by presence of other drops. As such, when the drops' wakes are interacting strongly, Ucr can increase by 45%.

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