DROPLET ADHESION TO HYDROPHOBIC NONWOVEN FIBROUS SURFACES

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In this talk, we present an overview of our computational and experiment study on droplet mobility over hydrophobic nonwoven materials (electrospun Polystyrene in this case). As the earth gravity was not strong enough to detach water droplets from the fibers, the experiments were conducted using an aqueous ferrofluid, and the ferrofluid droplets were mobilized on the surface with the help of a permanent magnet. The detachment process was recorded via a high-speed camera to detect the moment of detachment, and the magnetic force was measured using a sensitive scale. Numerical simulations were also conducted to help develop an easy-to-use predictive equation for the force required for droplet detachment from the nonwoven surface.