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**Contact line dynamics of sessile nanofluid droplets under inert and saturated atmospheres** STUART JACK, KHELLIL SEFIANE, PRASHANT VALLURI, University of Edinburgh, OMAR MATAR, Imperial College London — We present experimental results concerning contact line dynamics of sessile ethanol droplets laden with TiO<sub>2</sub> nanoparticles under unsaturated and saturated environments. The measuring apparatus comprises of a special motorised stage designed to allow for a range of forced speeds to study the dynamic effects. An isolated metallic chamber wherein the droplet was deposited allowed for maintenance of saturated or unsaturated conditions. Results show dependence of the driving force and the Capillary number (based on contact line velocity) - but, not in accordance with the traditional Cox-Voinov and hydrodynamic theories. Our analysis shows that the deviations from these standard theories could be due to local increase of viscosity at the contact line. Results also show that evaporation has little effect on the contact line behaviour of TiO<sub>2</sub>-Ethanol nanofluids.

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