

Abstract Submitted
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Roughness influence on human blood drop spreading and splashing FIONA SMITH, NAOMI BUNTSMA, DAVID BRUTIN, IUSTI, Aix-Marseille University — The impact behaviour of complex fluid droplets is a topic that has been extensively studied but with much debate. The Bloodstain Pattern Analysis (BPA) community is encountering this scientific problem with daily practical cases since they use bloodstains as evidence in crime scene reconstruction. We aim to provide fundamental explanations in the study of blood drip stains by investigating the influence of surface roughness and wettability on the splashing limit of droplets of blood, a non-Newtonian colloidal fluid. Droplets of blood impacting perpendicularly different surfaces at different velocities were recorded. The recordings were analysed as well as the surfaces characteristics in order to find an empirical solution since we found that roughness plays a major role in the threshold of the splashing/non-splashing behaviour of blood compared to the wettability. Moreover it appears that roughness alters the deformation of the drip stains. These observations are key in characterising features of drip stains with the impacting conditions, which would answer some forensic issues.

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