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Precipitation Dynamics in a Respiratory Droplet Evaporating on a Solid Surface ABDUR RASHEED, PRASENJIT KABI, SHUBHAM SHARMA, SAPTARSHI BASU, Indian Institute of Science, SWETAPROVO CHAUDHURI, Institute for Aerospace Studies, University of Toronto,, ABHISHEK SAHA, University of California — Expired respiratory droplets from an infected person dry and pose a threat to those in immediate vicinity. While smaller droplets desiccate in air, larger droplets will settle and evaporate on a surface creating fomites. The authors have used surrogate respiratory droplets consisting of salt in water (1understand the role of different surfaces such as glass, plastic, ceramic and metal on the final distribution of virus in fomites, which is reportedly different from airborne precipitates. Particles of same size as most well-known virions are loaded in an initial concentration of 109 particles/ml. Fluorescent labelling of particles visualizes their relative distribution within the surface precipitation. Crystals are precipitated at the end of the droplet evaporation; pre-dominantly large isolated crystals are observed on metals while dendrites, of varying sizes based on the substrate, are observed in other cases. The particles appear preferentially located in the dendritic formations which could be due to their faster evolution rates as compared to large crystals. This is linked to the flow and evaporation in sessile droplets.

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