Abstract Submitted
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Role of Diffusion Induced Coalescence on Growth of Breath Figures[1] NILESH D. PAWAR[2], Indian Institute of Technology Delhi, RAMACHANDRA D. NARHE, Interactive Research Institute for Science and Education, SASIDHAR KONDARAJU, Indian Institute of Technology Bhubaneswar, MICRO/NANOSCALE TRANSPORT COLLABORATION, EXPERIMENATAL DROPWISE CONDENSATION COLLABORATION, CONDENSATION AND BOILING COLLABORATION — Growth of breath figure (the pattern formed due to condensation of water droplets on a cold surface) have been studied using experimentally and computer simulations. We studied the role of diffusion induced coalescence of droplet growth. We observed that for droplet growth without diffusion $< R > \sim t^{1/3}$ and $t$growth laws in an isolated and the self-similar growth regimes respectively. However, when the droplets were allowed to diffuse on the surface, in addition to $t^{1/3}$ and t growth laws, after critical value of surface coverage, droplet growth also follows . The number of droplets decreases with time and follows the $N \sim t^{-\beta}$ for all growth stages with different β values. The growth laws are in good agreement with the experimentally observed values.

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