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Electrohydrodynamics-driven pattern formation of liquid drops ALI BEHJATIAN, ASGHAR ESMAEELI, Southern IL Univ-Carbondale — Direct Numerical Simulations are performed to explore pattern formation of suspension of leaky dielectric liquid drops in uniform DC electric field. The applied electric field strength is moderate so that the drops do not disintegrate, but they go through tangible deformation. The results show that the drops form columnar structures or horizontal rafts, depending on the ratio of the dielectric properties of the drop liquid and the ambient liquid. Scaling arguments are used to characterize the time scale of column and raft formation and their breakup, when the electric field is disconnected.

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