Supplementary Information: A Modified Spin-coating Technique to Achieve Directional Colloidal Crystallization

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Supplementary Figure 1 shows schematically a cropped side view of the modified spin-coating chuck used in the experiments. The essential elements in this setup are two wire brushes, denoted in the figure by open red circles, that serve as dynamic electric contacts. These brushes (one of them is seen very clearly in Figure 1(a) of the main manuscript) were connected to the live and ground terminals respectively of a high voltage amplifier and they make continuous electrical contact with two rotating electrodes on the modified chuck (shown in diagonal blue hatch). The dynamical contacts on the chuck are realized through two exterior rings. In addition there is electrical contact between these two exterior rings and two top plates of the chuck (also shown in diagonal blue hatch

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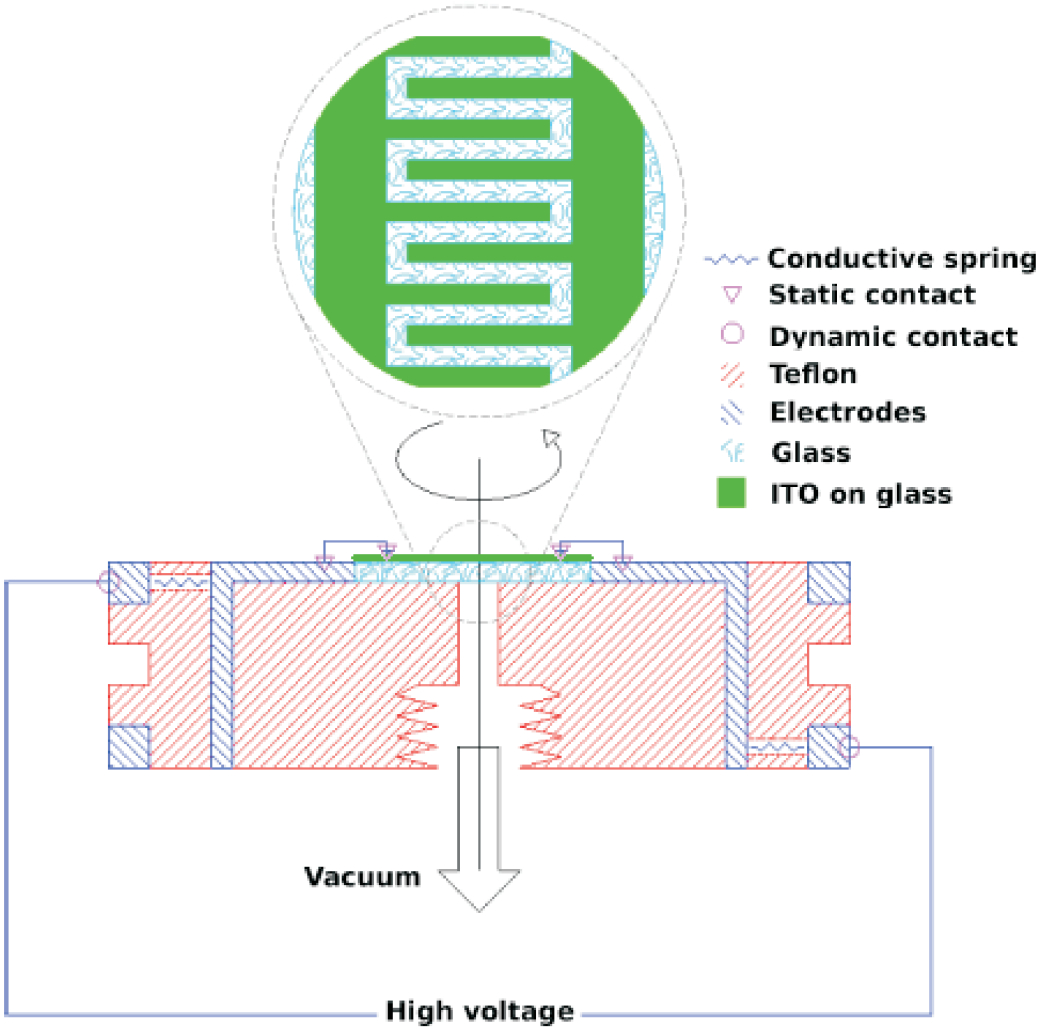
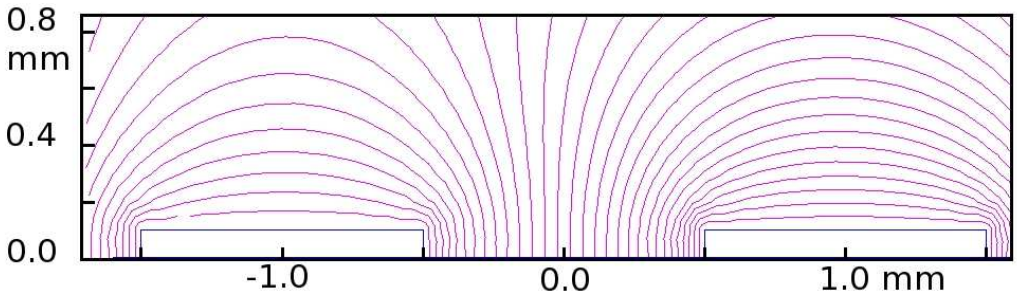


Supplementary Figure 1: Schematic of the modified spin-coating chuck to apply electric fields. The bottom half of the schematic shows the side view of the chuck with the substrate shown in green. The top half of the schematic shows the top view of the substrate, which has two sets of mutually interdigitating electrodes. Electrical contact is made between the two exterior rings on the chuck and the two interdigitating electrodes on the substrate such that one of the electrodes is connected to high voltage and the other is grounded.

to emphasize electrical continuity). These top plates are also seen very clearly in Figure 1(a) of the main manuscript. These plates make static electrical contact with the two interdigitated ITO electrodes (red inverted triangles).

Supplementary Figure 2 shows the spatial nonuniformity in the equipotential lines in a schematic simulated electrostatic profile for the field geometry near two digits in the interdigitated electrode

geometry. The simulation is carried out for a potential difference between electrodes of 1000 V, and the potential difference between adjacent equipotential lines is 32.25 V. Both the strength and the nonuniformity of the electric field is greatest close to electrode edges (where the equipotential lines are most closely spaced) and most uniform near the electrode center as well as in the centre of the space between the two electrodes.



Supplementary Figure 2: Equipotential lines in the interdigitated electrode geometry The nonuniformity in the electric field can be visualized via the spatially varying density of equipotential lines.