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Microfluidic Insights into Filter Design SORELL MASSENBURG, DAVID WEITZ, Harvard University — Nearly every application involving fluid relies heavily upon filtration, yet filter design is not well understood. Previous studies show that hard sphere clogging in microfluidic channels is well described by a probabilistic model that also reveals information about the clogging material's proclivity to aggregation. Design features, such as pore size distribution, can be modeled in two dimensions using soft lithographic techniques to fabricate microscale pores. We then test the efficacy of variations in pore design by clogging these pores with polystyrene microparticles. The clogging behavior of these fabricated pores is then compared to the aforementioned probabilistic model to elucidate the function of various features of filter design.

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