S2.1.2 MODELING PARTICLE MOVEMENT THROUGH MICROPOROUS MEMBRANES

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The structure of microporous membranes is related to their polymeric composition and the processes by which they are manufactured. Analytical techniques for their basic characterization are well known, but performance in actual applications using biological samples most often relies on empirical testing to determine the combination of membrane and filtration conditions that yields the desired results. This goal is often achieved without necessarily gaining an understanding of how the membrane is functioning. To improve our understanding of membrane performance, we have started using a combination of microscopy and 3-D reconstruction to create digital models of membrane pore structure. This information is then used to create flow simulations that allow us to visualize and compare particle movement through different membrane structures. Results of these studies will be presented.