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COMSOL Multiphysics Simulation in biomedical engineering

Abstract

In the past two decades, COMSOL Multiphysics Software Package have emerged as a powerful tool for simulation, particularly in Nanotechnology and most importantly in biomedical application and various application involving fluid and solid interactions. Compared with conventional component or system design, distinctive advantages of using COMSOL software for design include easy assessing to the significant parameters in various levels of design, higher throughput, process monitoring with lower cost and less time consuming [1,. This review aims to summarize the recent advancements in various approaches in major types of micro fluidic systems simulations, design application of various COMSOL models especially in biomedical applications. The state-of-the-art of past and current approaches of fluid manipulation as well as solid structure design fabrication was also elaborated. Future trends of using COMSOL in nanotechnology, especially in biomedical engineering perspective.

Keywords; Biomedical Engineering, COMSOL Multiphysics, Simulation, System Design