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Microfluidic Platforms for Bio-applications, In book: Advanced Mechatronics and MEMS Devices II

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Abstract: This chapter provides a brief overview of three actuation mechanisms that are relevant for biomedical applications of microfluidics. Actuation mechanisms are employed in the field of microfluidics for realizing unit operations such as focusing, switching, and separation. The topics dealt with in this chapter include dielectrophoresis, acoustophoresis, and magnetophoresis. The first section provides an introduction to these and related topics while the second section deals specifically on dielectrophoresis. The third and fourth sections detail acoustophoresis and magnetophoresis, respectively. This chapter concludes by providing a quick comparison of these different actuation methods.