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manufacturing technology; 2.7 UNSTEADY FLOW EFFECTS: INERTANCE; 2.8 FLUID ACCUMULATION: CAPACITANCE; 2.8.1 Accumulation mechanisms; 2.8.2 Gravitational capacitance; 2.8.3 Fluid compression capacitance; 2.8.4 Capacitance due to wall elasticity; 2.8.5 Capillary capacitance; References; Chapter 3 Simple Components and Devices; 3.1 CONNECTING CHANNELS; 3.2 AREA CONTRACTIONS AND NOZZLES 3.2.1 Characterization: search for a nozzle invariant 3.2.2 Generation of free jets and droplets; 3.2.3 Generating submerged jets; 3.3 DIFFUSERS AND COLLECTORS; 3.4 RESTRICTORS: OBSTACLES TO THE FLOW; 3.5 DIODES; 3.5.1 Labyrinth diodes; 3.5.2 Vortex diodes; 3.5.3 Reverse flow diverters; 3.6 REACTORS AND HEAT EXCHANGERS; 3.7 MIXERS; 3.8 THREE-TERMINAL JET PUMP TRANSFORMERS; 3.8.1 Venturi transformers: a nozzle and a diffuser; 3.8.2 Essential facts about jet pump transformers: two nozzles and a diffuser; 3.8.3 Common terminal and different connections into the circuit 3.9 TOWARD THE SUBDYNAMIC LIMIT References; Chapter 4 Valves and Sophisticated Devices; 4.1 LOADING CHARACTERISTICS; 4.1.1 Loading a simple jet-type device; 4.1.2 Passive flow control valves; 4.1.3 Load-switching in a passive Coanda-effect valve; 4.1.4 Passive jet-type pressure regulators; 4.2 FLUIDIC CONTROL ACTION: ACTIVE VALVES; 4.2.1 Jet deflection; 4.2.2 Colliding jets; 4.2.4 Separation and supercirculation; 4.2.5 Displacement; 4.2.6 Fluid "plug"; 4.3 JET DEFLECTION; 4.3.1 The deflection mechanism; 4.3.2 Simplest example of the jet-deflection valve 4.3.3 Symmetric proportional control valves

Sommario/riassunto

For engineers interested in working in the area of microfluidics, it is critical to have a solid understanding of how fluid flow in microchannels and devices is driven by pressure differences. This cutting-edge resource provides you with that essential knowledge. Offering you comprehensive and up-to-date details on all aspects of the subject, Pressure Driven Microfluidics presents the basic laws of fluid flow, and goes on to describe sophisticated devices like fluidic amplifiers and oscillators. Moreover, you get in-depth coverage of the various principles of signal and power transformations b
