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Sommario/riassunto	Microfluidic platforms are increasingly being used for separating a wide variety of particles based on their physical and chemical properties. In the past two decades, many practical applications have been found in chemical and biological sciences, including single cell analysis, clinical diagnostics, regenerative medicine, nanomaterials synthesis, environmental monitoring, etc. In this Special Issue, we invited contributions to report state-of-the-art developments in the fields of micro- and nanofluidic separation, fractionation, sorting, and purification of all classes of particles, including, but not limited to, active devices using electric, magnetic, optical, and acoustic forces; passive devices using geometries and hydrodynamic effects at the micro/nanoscale; confined and open platforms; label-based and label-free technology; and separation of bioparticles (including blood cells), circulating tumor cells, live/dead cells, exosomes, DNA, and non-bioparticles, including polymeric or inorganic micro- and nanoparticles, droplets, bubbles, etc. Practical devices that demonstrate capabilities to solve real-world problems were of particular interest.