cell-BOCS: Bio-Optofluidics Cell Sorter

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Within the framework of the recent DTU spin-out activity OptoRobotix we are developing an active cell sorter [1] that utilizes parallel microscopic machine vision for cell identification. Particles are identified based on visual features such as shape, size and color using image processing. The sorter shares features from our previously developed BioPhotonics Workstation [2, 3]. Hence, it benefits from the extended axial manipulation range provided by the low numerical aperture geometry. Detected particles are catapulted axially by several hundred microns – all with full parallelism over a large field of view, allowing them to be displaed from one laminar flow region to another. As the sorting motion is transverse to the viewing plane, multiple particles can be catapulted at the same time, therefore enabling a fully parallel sorting process [4, 5]. The cell-BOCS is developed with small footprint such that it can operate as a table top device, a significant advantage over flow cytometry or FACS systems.

The first commercial prototype of the cell-BOCS promoted by DTU spin-out OptoRobotix

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