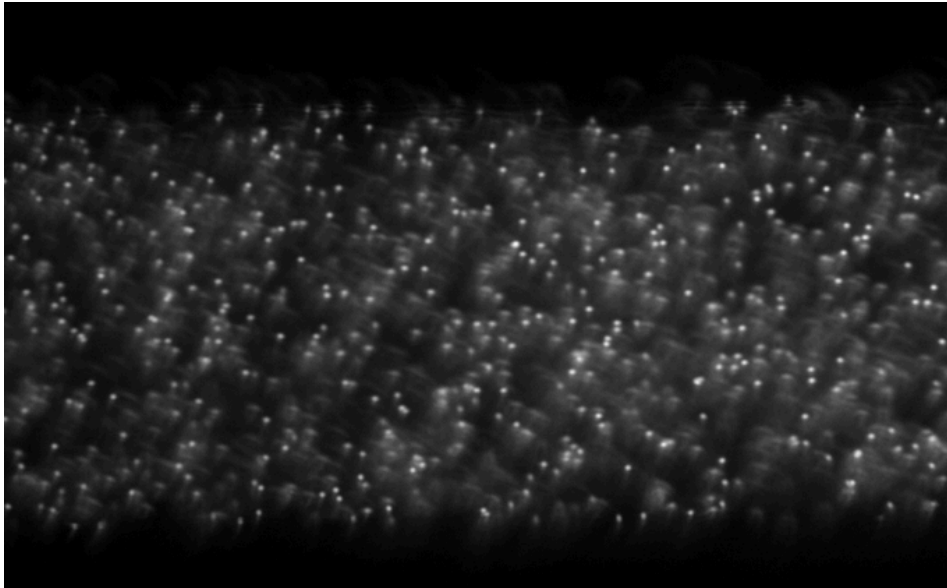


# Image pre-processing for micro particle image velocimetry



Particle Image Velocimetry is a well-known technique for measuring the fluid motion in fluidic devices. By adding particles to a fluid, the  $\mu$ PIV can analyze the movement of the fluid and generate two-dimensional or even three-dimensional flow fields. A PIV apparatus usually consists of a camera, a light source, and the fluid that is being examined. The camera takes several images from the particle-seeded fluid while it is flowing through the microfluidic chip and the light source illuminates the fluorescent seed particles that have been added to the fluid. These images are then used to measure the flow field of our system. As the main portion of this research project, we developed new techniques and approaches using image-preprocessing tools in order to increase the quality of images and subsequently PIV calculations.