

Video Legends:

Video 1. Simulation of the sperm cell rotation: Simulation of the head of a spermatozoon falling in the trapping beam and rotating (switchback oscillation).

Keywords: Spermatozoon, optical tweezer, self-spin.

Video 2. Spermatozoon in a microchannel: A spermatozoon, floating into the channel, is captured by the optical trap and starts to rotate. When the laser is switched off it continues its travel in the channel.

Keywords: Microfluidic channel, optical trap, induced rotation.

Video 3: Spermatozoon rotation. Holographic sequence acquired during spermatozoon rotation.

Keywords: Digital holography, spermatozoon, rotation.

Video 4: 3D visualization of a sperm cell: 3D reconstructions of the spermatozoon taken from different points of view. The left column represents all the silhouettes extracted from the corresponding QPMs. In the right one the visual hull reconstructions computed by the SFS algorithm are reported.

Keywords: Spermatozoon, visual hull, SFS algorithm, phase maps.

Video 5: Live spermatozoa: Two live spermatozoa are simultaneously trapped and moved by HOTs.

Keywords: Spermatozoa, holographic optical tweezers.