Title:	Unravelling the Nano-Mechanical Effect of Photon Momentum at Fluid Interface Using Optical Techniques
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Abstract:	While the photons momentum in vacuum is well established, the nature of photons momentum inside a transparent dielectric medium, such as water, is still debated for over a century known as the Minkowski-Abraham controversy. In this thesis, we shed light on this long-standing puzzle by developing new optical techniques capable of resolving nanomechanical effects of light on an air-water interface. With our high precision data we unambiguously validate the centuryold Minkowski theory for a general angle of incidence. The possibility of existence of Abraham momentum under certain conditions is also experimentally probed. The techniques also allows us to study many interesting nanometric effects on fluid surfaces by external fields. Besides providing new insight into the photons momentum in a medium we envisage wide applications of our noninvasive optical techniques.
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