An amazing property of optics is the possibility of having zero reflection. In more detail no reflection occurs from a clean and perfect interface illuminated under a unique angle of incidence with p-polarized light. This phenomenon is described by Brewster’s law providing the so called Brewster’s angle for the involved optical media and can be used to increase the optical contrast between the pure and covered substrate. Based on this phenomena, Brewster angle microscopy was introduced in 1991 [1][2].

The new nanofilm_ultrabam is based on a completely new optical pathway of light that provides fully focused images at 720x400 µm with a lateral resolution of 2 µm. It allows the imaging of Langmuir monolayers or adsorbed films at the air water interface with max 35 frames per second. (Movies at http://nanofilm.de/bam).

Monolayer of DMPE (a,b,c) during first-order phase transition and Ethyl stearate monolayer (d,e,f), (nanofilm_ultrabam, Accurion GmbH, Göttingen, Germany).

Current application of Brewster angle microscopy will be presented showing the improved image quality especially from the point of view of time resolution. An additional focus will be on quantitative results from Brewster angle microscopy.