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(57) Abstract :

The present invention relates to a system (100) for measuring thickness of flat and oblique film of polar liquid and nanofluid (L). The system (100) comprises a microscope (4) fitted with a camera (3) for focussing on the liquid (L) sample, an ultraviolet (UV) light source (5) transmitted through an optical fibre to the microscope (4), a fabricated test section (6) behaving as a microchannel responsible for generation of meniscus, a spectrometer (1) based on reflectometry for obtaining the reflectance data from the microscope (4) and measuring the extended meniscus thickness profile, and a processor (2) for analysing the image data captured through the camera (3) mounted over the microscope (4). With the aid of the spectrometer (1) and the microscope (4) with the aperture size $\leq 100\mu\text{m}$ with 15X objectives, the system (100) measures the thickness of both the flat and the oblique film of the polar liquid and the nanofluid (L) sample in the range of 12-50 nm.

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