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# Combined PIV and fibre orientation measurements on the KTH water-table

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Velocity and fiber orientation distributions on the KTH water table are studied. On the water table, a water (or suspension) film is flowing down an inclined plate ($2000 \times 560$ mm) driven by gravity. This is a good experimental model of one half of channel flows often used in direct numerical simulation studies. The friction Reynolds number (based on the liquid layer thickness, which corresponds to half the channel width in a channel flow) is $Re_\tau = 170$. Measurements are made by capturing images of fibres (cellulose acetate fibres, $d = 70$ $\mu$ m and $l = 1$ mm) and PIV tracer particles in planes parallell to the wall. The planes are defined by a illumination with a laser sheet and images were acquired both with and without fibres. The images will be analyzed in two ways: PIV will be used to determine the local and instantaenous flow velocities and a steerable filter will be used to determine the fiber orientation and position of the fibres in the images. The first purpose is to provide information on local structures of flow, fibre positions and fibre orientations, albeit not simultaneous. When this has been achieved, efforts will be made to extract flow data from the images with both tracers and fibres by eliminating the fibres from the images once their positions and orientations has been determined.