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**Inertial effects on the orientation of fibres in a suspension flow close to a solid surface** ALLAN CARLSSON, FREDRIK LUNDELL, KTH Mechanics, L. DANIEL SÖDERBERG, STFI-Packforsk AB — The orientation of fibres suspended in a viscous fluid, flowing over a solid wall, has been studied experimentally. A CCD-camera was mounted underneath the transparent wall, in order to study the fibre orientation in planes parallel to the wall. Experiments were performed on two suspensions with different fibre lengths. In both suspensions the density difference between the fibres and the liquid caused the fibres to slowly sediment, resulting in an accumulation of fibres near the wall. For the shorter fibres there was a peak in the fibre concentration at the wall, while for the longer fibres most fibres were detected at distances from the wall larger than half a fibre length. Another difference was seen in the fibre orientation near the wall. At distances from the wall larger than one fibre length the fibres were oriented in the flow direction in both suspensions. Closer to the wall shorter fibres adapted an orientation close to perpendicular to the flow, a shift in orientation not seen on the longer fibres. A possible explanation for the observed differences could be inertial effects, which is discussed further.

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