

Visualization of Flow Structure in a Channel with Corrugated Walls by Liquid Crystals

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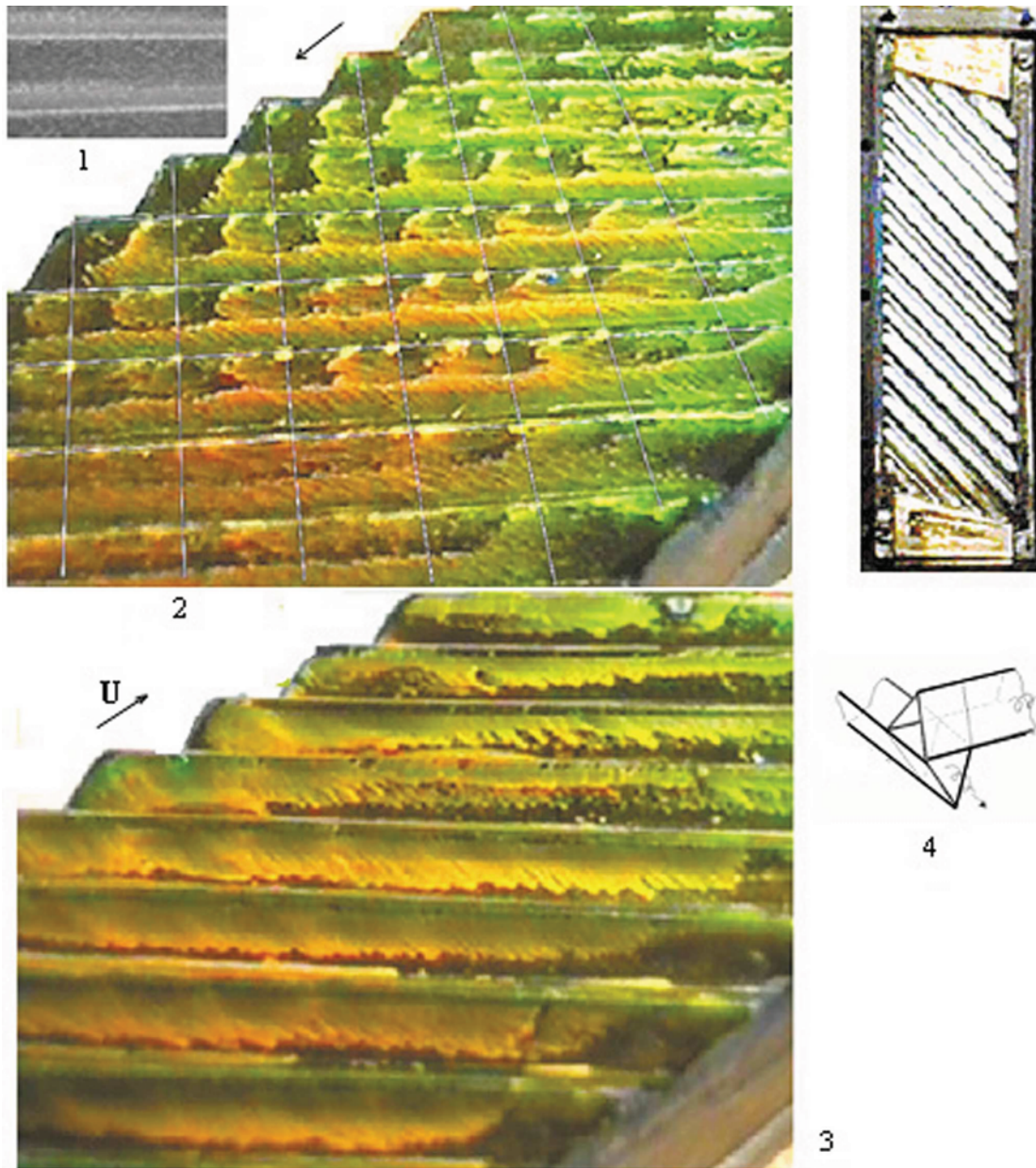


Fig. 1. Test surface with LC without flow

Fig. 2. Shear stress visualization. General view on the corrugated plate on the lee side

Fig. 3. General view on the windward side

Fig. 4. Test model and chart of the channel cell

Visualization of the shear-stress distribution on a wall of the channel formed by two corrugated sheets with opposite directed ribs is presented in figures. For the purpose, the effect of texture transition from the so-called focal-conic texture to planar texture in shear sensitive liquid crystals has been used. Corrugation angle (the twice angle between main flow direction and rib line) $\theta=90^\circ$, crimp angle $\varphi=60^\circ$, hydraulic diameter of the inner channel $d_h=7.6$ mm and Reynolds number $Re_{ch}=1.3 \times 10^4$.