FM14L_10557

XXI International Congress of Theoretical and Applied Mechanics
Warsaw, Poland, August 15–21, 2004

# Solitary Waves on Liquid Film Flowing Along a Periodic Wall

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The characteristics of solitary waves, travelling along a wall with orthogonal corrugations at right angles to the flow direction, are studied experimentally and are set in perspective with their counterparts over a flat wall. Large disturbances are introduced at the inlet, and lead to the formation of more ordered wave trains. The shape of each solitary hump is influenced by the periodicity of the wall, through its interaction with the statically deformed free surface that corresponds to the base flow without waves. At high Re, travelling waves recede in favor of a stationary three-dimensional free surface structure, consisting of transverse series of depressions along the corrugation troughs. This phenomenon has no counterpart in film flow along a flat wall.

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