Solutions of Integral Boundary Layer Approaches to Solitary Waves on a Falling Film Under An Electrostatic Field

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In this research, the characteristic of the solitary waves on a falling film under an electrostatic field will be investigated based on the integral boundary layer theory. Intensities of wavelet introduced by the authors in the previous research which was based on the lubrication approximation will be recalled to formulate the relationship with the Reynolds number. And then the evolution equation derived from each theory (i.e., energy integral or momentum integral method) is integrated to see the forming process of solitary wave and to validate the results in a moving coordinate analysis.