Two Layer Slot Coating Frequency Response Analysis

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Extended Abstract

Coating two layers simultaneously is attractive for producing distinct functional layers; also one ultrathin layer of a pair. On the other hand, there are many coating defects to overcome in reconciling high quality with efficient productivity. Recently, the computational approach based on Navier-Stokes system has successfully specified the coating defects in two layer coating. However, the computational approach tends to consume the heavy workload in a computer and struggle the mesh generation/deformation.

Although visco-capillary model would be the good candidate to overcome the difficulties, however there are four technical hurdles to introduce the model:

1. Computation for Inertia/viscos forces beneath the slot gap.

2. Derivation of unsteady mass conservation equations

3. Specification of the interlayer positions

4. Computation on the discontinuous interlayer

In this presentation, the technical solutions to introduce the unsteady inertia augmented visco-capillary model for two layer slot coating will be proposed to analyze the frequency response efficiently.

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