TER M1 Mécanique 2016-17

Sujet du Projet : Etude CFD d'un film liquide sur plan incliné

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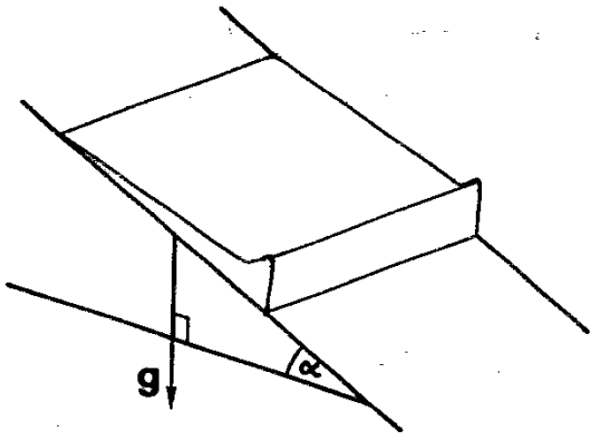

Résumé du sujet :

Rain water is often observed to flow down nearly as a sheet down an inclined surface, for instance, on cars in heavy rain. In industry such flows also occur, notably for mass transport applications and coating processes. The flow regime may be desirable or not, depending on the application, and this is a design consideration in industry.

It is proposed here to conduct CFD simulations for a simplified model system of a liquid film moving down an inclined simple substrate. Two-dimensional flow will be assumed and some further reductions will be made, such that the simulations can be run on a PC, with software such as Fluent. The corresponding system in three dimensions is shown in the figure.

The objective here is to determine how the flow and liquid layer shape change with flow parameters. Also, we would like to determine whether it is possible to use the CFD software to simulate such flows. It will be possible to compare against prior results.

This project may be of interest to students in mechanics who would like to familiarize themselves better with CFD, and with the main concepts in two-phase flows.

Informations complémentaires :

Ce résumé est rédigé en anglais, mais on peut faire ce projet en français.