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Computation of Drag and Lift Coefficients on Submerged Vanes in Open Channels

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Abstract : To stabilize the riverbanks in the curved reaches of alluvial channels due to erosion and to stop sediment transportation, many models and theories have been put forth. One among such methods is to install flat vanes on the channel bed in predetermined manner. In practical, a relatively small no of vanes can produce bend flows which are practically uniform across the channel. The objective of the present study is to measure the drag and lift on such submerged vanes in open channels. Experiments were performed and the data collected have been presented and analyzed. Using the data collected herein, predictors for the coefficients of drag and lift have been developed. Such predictors yield the value of these coefficients for the known fluid properties and flow characteristic of the channel.

Keywords : drag, lift, vanes, open channel
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