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## NUMERICAL SIMULATIONS FOR TRANSIENT FLOWS IN OBSTRUCTED CHANNELS OF MEMBRANE MODULES

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### **Abstract:**

Computational Fluid Dynamics (CFD) simulations are carried out for narrow obstructed channels of membrane modules. The simulations reveal formation of multiple vortices. These emerge near the transverse filament and at the top surface, which move along the channel. The movement of vortices ultimately causes the wall shear stress to vary with time with regions of high and low shear stress shifting their location in a periodic manner. Three dimensional effects also exist in the membrane channel. The size and shape of vortices and of the high velocity zone are seen to be significantly varying in the third dimension.

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