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Experimental Study of Rotor-Stator Flows with Centripetal Fluxes

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The evolution of the entrainment coefficient K of the rotating fluid in a rotor-stator cavity, is studied with an imposed centripetal flux and according to the flow control parameters. Measurements are realised by a two component laser Doppler anemometry (L.D.A.). It is shown that the coefficient K depends on a local flow rate coefficient Cqr of the fluid according to a 5/7 power law whose coefficients depend on the value of the velocity at the entry of the cavity. A theoretical analysis confirms the asymptotic behavior.

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