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Experimental investigation of boundary layer transition on rotating cones in axial flow in 0 and 35 degrees angle of attack ALI KARGAR, KAMYAR MANSOUR, Amir Kabir University of Technology (Tehran Polytechnic) — In this paper, experimental results using hot wire anemometer and smoke visualization are presented. The results obtained from the hot wire anemometer for critical Reynolds number and transitional Reynolds number are compared with previous results. Excellent agreement is found for the transitional Reynolds number. The results for the transitional Reynolds number are also compared to previous linear stability results. The results from the smoke visualization clearly show the crossflow vortices which arise in the transition process from a laminar to a turbulent flow. A non-zero angle of attack is also considered. we compare our results by linear stability theory which was done by. We just emphasis. Also we compare visualization and hot wire anemometer results graphically, our goal in this paper is to check reliability of using hot wire anemometer and smoke visualization in stability problem and check reliability of linear stability theory for this two cases and compare our results with some trusty experimental works.

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