

Abstract Submitted  
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**Effect of the Sign of  $Ro$  on the Stability of Stewartson Layers  
Generated by a Rotating Disc** JOZEF H.A. VLASKAMP, PETER J. THOMAS,  
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University of Leeds, Department of Applied Mathematics — The effect of the sign  
of rotation on the stability of the Stewartson layer formed by a rotating disc in a  
rotating fluid is investigated experimentally and numerically. A discrepancy exists  
between two earlier studies. Ref. [1] found the sign of  $Ro$  to have no influence,  
while Ref. [2] found a strong asymmetric behaviour. Numerical investigations in  
Ref. [3] suggested a difference in the boundaries along the disc as a possible cause  
of the discrepancy between the studies. In the current study experimental work is  
performed on the large scale facility at the University of Warwick (overall height 5.7m  
and 1.4 m diameter), with a single disc inside a movable end-wall. The size of the  
facility allows a much larger height to radius ratio than in previous experiments. A  
fully automated, traverse mounted 3D PIV system is used to allow data- acquisition  
over the length of the Taylor column without the need for recalibration. Further  
numerical work is conducted using the code described in Ref. [3]. REFERENCES:  
[1] W. G. Früh, P.L. Read, J. Fluid Mech., vol. 383, p. 143, 1999. [2] R. Hide,  
R., C.W. Titman J. Fluid Mech., vol. 29, p. 39, 1967. [3] R. Hollerbach, J. Fluid  
Mech., vol. 492, p. 289, 2003.

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