

Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Laminar separation bubble formation using a circular cylinder rotating adjacent to a flat plate¹ FARHANA AFROZ, AMY LANG, EMILY JONES, MICHAEL BRADSHAW, The University of Alabama — A new method for the formation of a laminar separation bubble (LSB) on a flat plate was investigated whereby an adverse pressure gradient (APG) was induced by the presence of a rotating cylinder. A parametric study was performed where the rotation rate and gap height (G) was changed to vary the strength of APG which affects the nature and extent of the LSB. Results showed that the height (H), length (L) and the separation point (S) of the LSB varied in conjunction with the strength of the APG and the Re. Time-Resolved Digital Particle Image Velocimetry (TR-DPIV) was used to document the LSB in this water tunnel study. Results captured the effects of changing flow speed, cylinder location and rotation rate on the development of the LSB.

¹Funding under NSF grant 0932352 is gratefully acknowledged.

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Date submitted: 26 Jul 2012

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