

Abstract Submitted  
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**Experimental Study of Unsteady Flow Separation in a Laminar Boundary Layer**<sup>1</sup> ANDREW BONACCI, AMY LANG, University of Alabama, REDHA WAHIDI, University of Texas of the Permian Basin, LEONARDO SANTOS, University of Alabama — Flow separation, caused by an adverse pressure gradient, is a major problem in many applications. Reversing flow near the wall is the first sign of incipient separation and can bristle shark scales which may be linked to a passive, flow actuated separation control mechanism. An investigation of how this backflow forms and how it interacts with shark skin is of interest due to the fact that this could be used as a bioinspired means of initiating flow control. A water tunnel experiment aims to study unsteady separation with a focus on the reversing flow development near the wall within a flat plate laminar boundary layer ( $Re$  on order of  $10^5$ ) as an increasing adverse pressure gradient is induced by a rotating cylinder. Unsteady reversing flow development is documented using DPIV.

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