

Abstract Submitted
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The Baseball Seam: Clever and Capable Passive Flow Control

BARTON SMITH¹, ANDREW SMITH², Utah State University — It is obvious to any observer of baseball that the aerodynamics of the ball are important, both for pitched and batted balls. Much has been written about the well-known Magnus Effect, or the force on a moving ball due to its rotation. Less is known about forces due to the wake of the ball. Baseball seams make baseballs very interesting when compared to other sports balls. They play two roles: As many have speculated, when located in the favorable pressure gradient on the front of the ball, they can cause laminar flow to become turbulent, which subsequently modifies the wake of the ball. More surprisingly, when located in the adverse gradient on the back of the ball, they can also modify the location of boundary layer separation and can make the wake (and thus the force on the ball) asymmetric, leading to movement. In this talk, we will discuss these effects and the possibility of the existence of the “laminar express” 2-seam fastball that moves due an asymmetric wake rather than by Magnus effect.

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