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Modification of the wake behind a bat ear with and without tubercles CHRISTOPHER PETRIN, BRIAN ELBING, Oklahoma State University — The Mexican Free-Tailed Bat (*Tadarida brasiliensis*) is a highly aerobatic bat, known to dive from altitudes of several thousand feet into their home caves, reaching estimated speeds of 27 m/s (Davis et al., *Ecological Monographs*, 32, 1962). A series of small tubercles have been observed on the leading edge of the bat's ear, which mimic the pattern of tubercles found on the fins of the humpback whale (*Megaptera novaeangliae*). The tubercles on the whale fins have been proven to delay stall on the fin and allow the whale to retain better control during dives. The goal of the current study is to assess whether the bat ear tubercles fulfill a similar purpose of improving flow control, particularly at high angles of attack. This was accomplished by acquiring PIV measurements of the bat ear wake with and without the tubercles. The velocity profiles were used to assess the drag and lift as a function of angle of attack. These results will be presented and the impact of the tubercles assessed.

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