

Abstract Submitted
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Flight **of**
a Rufous Hummingbird Robotic Model-PIV Measurements¹ HUMBERTO
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SOUSA, New Mexico State University, BRET TOBALSKE, University of Portland,
JAMES ALLEN, New Mexico State University — Phase-locked PIV velocity data
was obtained around the wing and in the wake of a 2-DOF scaled robotic humming-
bird model. Experiments were conducted in a large water channel facility at New
Mexico State University. Reynolds and Strouhal numbers for the experiment are
in the range of 3600 and 0.97, respectively. Momentum balance from velocity field
measurements is used to estimate the lift and drag of the hummingbird model, and
compared with force data directly obtained using strain gages.

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