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Flow field characteristics of an ornithopter ALFREDO JUAREZ, JAMES ALLEN, New Mexico State University — This paper details phase locked PIV measurements from a model Ornithopther flying in a wind tunnel at representative flight conditions. Testing over a range of Strouhal numbers, 0.1-0.3, shows that the unsteady wake is composed of coherent vortical structures that resemble vortex rings. A single ring is formed in the wake of each wing during one wing beat. Momentum balance from velocity field measurements are used to estimate the lift and drag of the ornithopter.

James Allen
New Mexico State University

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