

Abstract Submitted
for the APR05 Meeting of
The American Physical Society

Video-Based Motion Analysis PAUL FRENCH, SUNY College at Oneonta, JOEL PETERSON, SUNY College at Oneonta, JULIE ARRIGHI, Rensselaer Polytechnic Institute — Video-based motion analysis has recently become very popular in introductory physics classes. This paper outlines general recommendations regarding equipment and software; videography issues such as scaling, shutter speed, lighting, background, and camera distance; as well as other methodological aspects. Also described are the measurement and modeling of the gravitational, drag, and Magnus forces on 1) a spherical projectile undergoing one-dimensional motion and 2) a spinning spherical projectile undergoing motion within a plane. Measurement and correction methods are devised for four common, major sources of error: parallax, lens distortion, discretization, and improper scaling.

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Date submitted: 14 Jan 2005

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