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Tibor Marcinek* (marci1t@cmich.edu), Central Michigan University, Department of Mathematics, Pearce Hall 117, Mount Pleasant, MI 48858. *Motions and Rates: Using GeoGebra to Analyze Video Recordings.*

Moving objects are often used to illustrate applications of mathematics and derive important mathematical models. However, students' first-hand experience with these phenomena is problematic and textbooks heavily rely on rather abstract descriptions. Although stroboscopic images and their analysis may provide some experience, video recordings offer greater flexibility and potential to bring hands-on explorations of real motions into the classroom.

In the presentation, we will briefly explain how GeoGebra can be turned into a simple video player with play & pause button and a seek bar, and how its mathematical tools can be utilized to analyze recorded motions. We will share ready-to-use applets and ggb files with videos that represent typical mathematical models (free fall, projectile motion) as well as some phenomena recorded using special techniques (candle burning rate recorded in a time-lapse mode). (Received September 22, 2011)