962-N1-156   **Douglas A Lapp*** (`lapp1da@mail.cmich.edu`), Dept. of Mathematics, 214 Pearce Hall, Central Michigan University, Mt. Pleasant, MI 48859. *Using Dynamic Geometry Software to Simulate Motion Graphs with a Data Collection Device.*

The presentation will use a dynamic geometry system (Cabri) to create a simulation of an object in motion, its position-time graph, and its velocity-time graph on the same screen. The purpose is to illustrate the relationship between these graphs and at the same time to develop the underlying concept of derivative through the construction. Using the Measurement Transfer tool on Cabri, a moving point is created on an axis parallel to the x-axis. The original x-axis represents time, t, and the point in motion is constructed to move according to a function's behavior. The position of the object in motion is mapped onto the y-axis and perpendicular lines to each of the axes at these points are used to project the (t, y(t)) point into the ty-plane. The Trace command is used for the newly created point as time is animated to leave a trail of the point's location in the ty-plane. The velocity-time graph is created by translating the "time" coordinate a distance along the time axis (this represents "h" in the difference quotient and can be dynamically changed). The slope between (t, y(t)) and (t+h, y(t+h)) is evaluated using the Slope command and the position-time and velocity-time graphs are plotted in "real-time". (Received August 15, 2000)