1056-C1-1410   **Jeff Chyatte*** (`Jeff.Chyatte@montgomerycollege.edu`), 7600 Takoma Avenue, Takoma Park, MD 20912. *Hyperbolic Conic Section through Kinetic Sculpture.*

The Science, Math and Art or SMArt project connecting conics sections and art provides a novel 3D demonstration of the hyperbolic path of an inclined rod rotating through a vertical plane. The inclined rod was connected at its center to a horizontal arm, which in turn is connected to a rotating vertical axis. As it is rotated, the inclined rod passes through a vertical plane, cutting in it a portion of a perfect hyperbola. To establish the standard hyperbolic equation, the length of the horizontal arm was designated r, the inclined rod forms an angle alpha with the horizontal, theta measures the rotation of the arm about the vertical axis, theta = 0 as the position where the horizontal arm lies in the half-plane and theta is measured counterclockwise when viewed from above. If the arm meets the vertical axis at the origin, and the half-plane is given by y = 0 and x > 0, then point of intersection of the inclined rod with the half-plane can be parameterized (as a function of theta) via x = r sec theta and z = − r tan alpha tan theta. The identity sec2 theta – tan2 theta = 1 can then be used to put the resulting curve into the standard hyperbolic form.

The sculpture "Theorem" by Jeff Chyatte was featured in Touchstone Gallery Washington, DC and Math Horizons Magazine April 2009 (Received September 21, 2009)