

1086-P5-1867      **Monica M VanDieren\*** (vandieren@rmu.edu), 6001 University Blvd, Robert Morris University, Moon Township, PA 15108. *Visualizing Multivariable Calculus with paper, Play-Doh<sup>®</sup>, blocks and CalcPlot3D-generated models.*

This presentation will describe the use of physical models in a Multivariable Calculus class at Robert Morris University. Interactive classroom activities exploring concepts such as intersecting surfaces, arc length, curvature, tangent lines to parametric curves, contour lines, cylindrical and spherical coordinate systems, tangent planes, gradients, directional derivatives, and double and triple integration will be shared. Each of these classroom activities features a low-cost physical model that the students construct from paper, Play-Doh<sup>®</sup> or blocks. The activities not only introduce students to the graphical concepts but also reinforce student understanding of graphs which they have generated with a freely available Java applet called CalcPlot3D. Additionally, this presentation will illustrate how the CalcPlot3D applet can be used to create physical models using 3D printers. CalcPlot3D is part of an NSF-funded grant project called Dynamic Visualization Tools for Multivariable Calculus (DUE- CCLI #0736968). See <http://web.monroecc.edu/calcNSF/> (Received September 24, 2012)