1086-97-2109 **Paul E Seeburger*** (pseeburger@monroecc.edu), Monroe Community College, 1000 E. Henrietta Rd., Rochester, NY 14623. *Playing with Multivariable Calculus Concepts Wearing 3D Glasses.* Preliminary report.

A tour of an NSF-funded project that seeks to develop geometric intuition in students of multivariable calculus. This online exploration environment called CalcPlot3D allows students (and instructors) to create and freely rotate graphs of functions of two variables, contour plots, vectors, space curves generated by vector-valued functions, regions of integration, vector fields, parametric surfaces, implicit surfaces, etc. 3D glasses can be used for a real 3D perspective! Come get a pair and try it out! A series of four assessment/exploration activities has also been created to help students "play" with the 3D concepts themselves, and to assess improvements in geometric understanding gained from these activities. Topics of these explorations include Dot Products, Cross Products, Velocity and Acceleration Vectors, and Lagrange Multiplier Optimization, and more are being developed. Preliminary results of the first four years of these assessments will be shared briefly. Short video lessons using the applet to visually verify lecture examples have also been created. The grant project is titled, Dynamic Visualization Tools for Multivariable Calculus (NSF-DUE- CCLI #0736968). See http://web.monroecc.edu/calcNSF/. (Received September 24, 2012)