1018-51-18   **Michelle Previte*** (`MichellePrevite@psu.edu`), Penn State Erie, School of Science, Station Road, Erie, PA 16563. *A Survey of Results Involving Vertex Replacement Rules.*

Given an initial graph G, one may apply a rule $\mathcal{R}$ to G which replaces certain vertices of G with other graphs called replacement graphs to obtain a new graph $\mathcal{R}(G)$. By iterating this procedure, a sequence of graphs $\{\mathcal{R}^n(G)\}$ is obtained. When each graph in this sequence is normalized to have diameter one, the resulting sequence may converge in the Gromov-Hausdorff metric to a fractal.

In this talk, vertex replacement rules will be defined and examples will be given of replacement rules which yield converging and diverging normalized sequences of graphs. Also, formulas for the topological and Hausdorff dimensions will be given as well as examples of rules which do and do not yield fractals. If time permits, sketches of the proofs the formulas for the topological and Hausdorff dimensions will also be given. (Received December 09, 2005)