Meeting: 999, Nashville, Tennessee, SS 12A, Special Session on Biomathematics

999-92-196 **Hannah Callender** (hlcallender@yahoo.com), Department of Mathematics, 1326 Stevenson Center, Nashville, TN 37240, and **Mary Ann Horn*** (horn@math.vanderbilt.edu), Department of Mathematics, 1326 Stevenson Center, Nashville, TN 37240. *A Review of Mathematical Modeling in Cellular Signaling.* Preliminary report.

When investigating the cell signaling processes of certain biological systems, one of the recurring themes is that of stability of the system. This presentation will begin with an outline of the basic types of cellular signaling, then review some available mathematical methods, including those developed by Sontag, et al., that may be used to analyze the behavior of the system. In particular, behaviors such as multi-stability and hysteresis occur frequently in signaling networks and the ability to detect these behaviors is very important. A two-dimensional biological example will be used to compare the method of Sontag, et al., which is framed in the context of feedback systems, with classical phase plane analysis. Further applications which are currently under study will conclude the talk. (Received August 23, 2004)