Meeting: 1003, Atlanta, Georgia, SS 7A, AMS Special Session on Beyond the Spherical Cow: Mathematical Sciences Research to Support Computational Biology

1003-92-1633 **Jill Mesirov*** (`mesirov@broad.mit.edu`). *Opportunities at the Interface between Mathematics and Biology.*

Advances in laboratory technology have caused an explosion in the rate at which biological data of all kinds can be acquired. Together with the availability of high performance computing, this abundance of data is allowing scientists to obtain global views of the cell and cellular processes. In fact, this need for more mathematical and analytic approaches pertains to all biological organization — from molecules and cells through organisms and populations. There are tremendous challenges when dealing with biological data and modeling biological systems. They range from the inherent noise in the data derived from biological systems, to local and global heterogeneity, to high dimensionality and dependence of the underlying variables, to the multiplicity of temporal and spatial scales. What is the best way for the mathematical sciences and mathematical scientists to push forward results on exciting questions in the biological realm?

In this session we will describe a wide range of biological problems while highlighting the underlying mathematical challenges and themes. Fostering effective interactions between mathematicians and biologists to work together to address these problems is critical to progress and should be a central priority of the science policy community. (Received October 05, 2004)