1056-92-132 **Rachel S Nancollas*** (rachel.nancollas@students.olin.edu), Olin College, MB 327, 1000 Olin Way, Needham, MA 02492, and **Benjamin Y Small**. *Structural Adaptation of Microvascular Networks.* Preliminary report.

Blood vessels are not static conduits—in response to changing hemodynamic and metabolic conditions, they alter their geometry so that the body can provide oxygen and other metabolites to its tissues. In this presentation, we briefly describe a model for structural adaptation of microvessels in which the diameter and width of every vessel is governed by a coupled system of differential equations. We also discuss a model for blood flow in a microvascular network in which the flow depends on the hydraulic resistance of every vessel in the network. We then analyze the adaptation of vessels in a small network and demonstrate that equilibrium is described by a system of nonlinear equations. We discuss our method for solving these nonlinear equations and show that depending on the network parameters, a variety of equilibria exist. (Received July 29, 2009)