

1116-VM-255      **Catherine E Patterson\*** (catherine-patterson@uiowa.edu), **Bruce Ayati** and **Sarah Holstein**. *The Dynamics of Multiple Myeloma Dysregulated Bone Remodeling*.

Multiple myeloma is a plasma cell cancer that affects the bones, immune system, and kidneys. Here we focus on the impact on the bone, specifically routine bone remodeling. The bone remodeling process is governed by chemical signaling between several cell populations. In multiple myeloma patients, this process is out of balance. Bone destruction outpaces bone replacement, leaving patients with bone lesions. This talk will describe the cell-signaling network that regulates bone remodeling and explain how it is impacted by multiple myeloma. We will then present a moving-boundary PDE model of this biological system, using Savageau's power law approximations for the cell interactions. We will also discuss the model's computational results and their significance. (Received August 18, 2015)