

## **E0036**

**SMART Teams: Students Modeling A Research Topic.** J. Morris, S. Colton, M. Patrick, T. Herman, MSOE Center for BioMolecular Modeling, Milwaukee, WI 53202.

We developed an NIH-funded professional development program entitled “Genes, Schemes, and Molecular Machines”. This is an evolving program for high school teachers using the resources of the protein databank. Teachers explore concepts of protein structure and are introduced to computer visualization tools used to design physical models of proteins. Teachers then form a team of students who are introduced to this technology and work with a local research mentor to design a physical model of the protein being investigated in their lab. The SMART Team program has three phases including Qualification, Research and Model Design, and Presentation. During the Qualification phase, students learn basic concepts of protein structure, explore the protein databank, and design a computer model of a molecular structure. In the Research and Model Design phase, students work with their science mentor to create a physical model of a selected protein. The physical model is built at the MSOE Center for BioMolecular Modeling using a Z-Corp 3-D printer. In the Presentation phase, students use their physical model to learn more about the function of the molecule and develop a presentation of their research topic in both an oral and poster format. Teams then present their research projects at local and national science education meetings.