**COLLOQUIUM**

Department of Computer Science and Engineering

University of South Carolina

### **Pushing Water up Mountains:**

### **Energy Oddities and Green High Performance Computing**

### **Kirk Cameron**

### Department of Computer Science

### Virginia Polytechnic Institute and State University

Date: **March 17, 2014**

Time: **1345-1445 (1:45pm-2:45pm)**

Place: **Swearingen 1A03 (Faculty Lounge)**

# Abstract

Green High Performance Computing (HPC) is an oxymoron. How can something be “green” when it consumes over 10 megawatts of power? Utility companies pay customers to use less power. Seriously. Energy use per capita continues to increase worldwide yet most agree new power production facilities should not be built in their backyards. HPC cannot operate in a vacuum. Whether we like it or not, we are part of a large multi-market ecosystem at the intersection of the commodity markets for advanced computer hardware and the energy markets for power. This talk will provide a historical view of the Green HPC movement including some of my own power-aware software successes and failures. I’ll discuss the challenges facing computer energy efficiency research and how market forces will likely affect big changes in the future of HPC.

**Kirk W. Cameron** is a Professor of Computer Science and Faculty Fellow at Virginia Tech (VT). He works to improve performance and power efficiency in high performance computing (HPC) systems and applications. Prior to joining VT, he was an assistant professor of Computer Science and Engineering at the University of South Carolina from 2001-2005. Professor Cameron is an award-winning pioneer of Green HPC. He co-founded the Green500 List and SPEC Power. His startup company MiserWare created the world's most popular free energy management software with half a million users in 160+ countries