Title:Modeling performance and power: methodologies, tools, and tradeoffs

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Abstract: We will describe novel approaches for accurate, predictive modeling of performance and power in the context of a scientific application workload.
The emphasis will be on methodologies and tools that are practical and can be employed at various stages of the system and application lifecycle. A spectrum of computing scales will be considered, from embedded to the extreme.

Bio: Since joining PNNL as a Laboratory Fellow in 2010, Hoisie has served as leader of the High Performance Computing Group in the Advanced Computing, Mathematics, and Data Division (ACMD, formerly CSMD), PNNL's Lead for the Office of Science Advanced Scientific Computing Research (ASCR) programs, and Director of ACMD Division. Before joining PNNL, Hoisie served in a variety of scientific and leadership positions at Los Alamos National Laboratory, including Director of the Center for Advanced Architectures and Usable Supercomputing and Leader of the Computer Science for High-Performance Computing Group and its Performance and Architecture Laboratory. Previously, he was affiliated with Cornell University as a senior research scientist, leading research to address challenges involved in optimal performance on high-end computing systems.

Hoisie is an internationally recognized expert in performance analysis, modeling, and engineering of extreme-scale parallel computing systems and applications and system architecture. He has served as the Principal Investigator of projects with diverse funding sources, including ASCR, National Nuclear Security Administration, Defense Advanced Research Projects Agency, National Science Foundation, and U.S. Department of Defense, among others. He has pioneered methods in his areas of expertise, creating practical, highly accurate performance modeling techniques that have set the standard in the community. Hoisie is a past winner of the Gordon Bell Award, awarded for his leading-edge work in parallel computing. He also has many other awards for technical and teaching excellence and has served extensively in the high-performance computing community in a variety of capacities, including conference organizer, editorial board member, committee and panel member, and on advisory boards. He has published extensively in peer-reviewed literature and co-authored three books.