Professor Yuri Bazilevs


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Mechanical and Aerospace Engineering
Jacobs School of Engineering
University of California San Diego (UCSD)

Research Interests:
Design of robust and efficient computational methods for large scale, high performance computing:
Yuri Bazilevs's research interests lie in the field of computational science and engineering with an emphasis on computational mechanics. The focus of his research efforts is the design of accurate, robust, and efficient computational methods for problems of contemporary engineering interest, and their implementation in large-scale, high performance computing environments. Prof. Bazilevs is a co-developer of a new computational technology called Isogeometric Analysis. In essence, Isogeometric analysis builds on the primitives of computer-aided design and computer graphics systems, it generalizes and improves upon finite element analysis, and it has the potential to bridge the gap between design and analysis. Prof. Bazilevs also works on fluid-structure interaction analysis, which is an area of research currently receiving considerable attention. He devised a fully-integrated isogeometric fluid-structure interaction framework enabling him to solve problems of interest ranging from marine engineering to vascular blood flow. He developed a parallel, general geometry, transient, three-dimensional fluid-structure code, together with a modeling system based on templates for patient-specific cardiovascular anatomy. The procedures are applied to various patient-specific models including abdominal aortic and cerebral aneurysms, a thoracic aorta with left ventricular assist device (LVAD), and a catheter-based drug delivery system for coronary arteries.

Capsule Biography:
Yuri Bazilevs is an assistant professor of Structural Engineering at UC San Diego. His research focuses on computational science and engineering for the development of robust computational methods for large scale high performance computing. Prior to joining UC San Diego, Dr. Bazilevs was a J.T. Oden ICES Postdoctoral Fellow (2006-2008) and also a lecturer in the Department of Aerospace Engineering and Engineering Mechanics at UT Austin (2007-2008). He has published more than 20 articles in refereed archival journals and
over 30 refereed conference proceedings articles, book chapters, and technical reports on computational solid and fluid dynamics, computational fluid-structure interaction, isogeometric analysis, turbulence modeling, and mathematics of finite elements and related approaches.

Education:
Ph.D. Computational and Applied Mathematics, 2006, University of Texas at Austin
M.S. Mechanical Engineering, 2001, Renssalaer Polytechnic Institute, New York
B.S. Mechanical Engineering (Magna cum Laude), 2000, Renssalaer Polytechnic Institute, New York

Awards:
2011 U.S. Association for Computational Mechanics Gallagher Young Investigator Award
2011 NSF Career Awards
J.T. Oden ICES Postdoctoral Fellowship, ICES, UT Austin, 2006-present

Selected Publications:
Books:

Journal Articles:


