

**TOPICS IN MECHANICAL ENGINEERING
THE FRANK W. OTTO DISTINGUISHED LECTURE SERIES**



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Lecture Title: Error budgeting methods for the design of precision machines

Friday, November 30, 2012, 2PM, SAC Ballroom B

Abstract

This seminar covers the theory and practice of creating error budgets for precision machines to enable design engineers to make more deterministically create and develop designs. Spreadsheets are presented and used to walk attendees through the error budgeting process. Methods for estimating 5 DoF errors in one DoF motion systems are presented, as well as how to interpret/extrapolate data from bearing catalogs. Design methods for achieving greater accuracy and precision by minimizing uncertainty in machine design are also discussed.

Biography

Alexander Slocum is the Pappalardo Professor of Mechanical Engineering at MIT, a MacVicar Faculty Teaching Fellow, and a Fellow of the ASME. He has seven dozen patents and has helped develop 12 products that have received R&D 100 awards for “one of the one hundred best new technical products of the year”. He has helped start several successful companies and has a passion for working with industry to solve real problems and identify fundamental research topics. Alex was the Massachusetts Professor of the Year in 2000 and is the recipient of the Society of Manufacturing Engineer’s Frederick W. Taylor Research Medal, and the ASME Leonardo daVinci and Machine Design Awards. His current interests focus on the development of precision machines from medical devices and instruments to energy harvesting and storage machines. Recently he served on the DoE Science Team working on the Gulf Oil Spill. Since high school days, Alex has had a passion for furniture making and carpentry. Alex also loves sports from SCUBA to snowboarding to iron-distance triathlons and marathons.

