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A Computation-Based Engineering Summit

Transforming Engineering through Computational Simulation SUMMIT

SAND2007-7823P

January 22-24, 2008 • Washington, DC

A Computation-Based Engineering Summit: Transforming Engineering through Computational Simulation

January 22-24, 2008
National Academy of Sciences Building
Washington, DC

NATIONAL ACADEMY OF ENGINEERING FOUNDED 1964

Sandia National Laboratories

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National Academy of Sciences Building
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Washington, DC 20418
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A Computation-Based Engineering Summit

Transforming Engineering through Computational Simulation

SUMMIT

January 22-24, 2008 • Washington, DC

Dramatic advances in computing now make it possible to use validated, physics-based computational simulations to predict the behavior of engineered products. Numerous studies have concluded that a predictive engineering capability is a prerequisite for innovation and success in the high-tech product marketplace. However, acquiring and implementing such a capability is problematic: acquisition costs, validation of predictions, filling research gaps, and a reluctance to change "tried-and-true" business practices are formidable barriers to the widespread adoption of Computation-Based Engineering. Unfortunately, past studies stopped short of creating a national roadmap for overcoming the barriers, gaining access to the requisite future capabilities, and accelerating the adoption of a Computation-Based Engineering approach.

The National Academy of Engineering and Sandia National Laboratories are co-hosting a Summit meeting of university, industry and government leaders in predictive engineering technology development and application to identify potential avenues for transforming engineering innovation and practice through the use of Computation-Based Engineering throughout industry and government. Participants will identify the major research gaps and barriers to acquiring a sustainable predictive engineering capability. Then they will consider ways to overcome these obstacles and propose possible "next steps" for promoting, planning and facilitating the utilization of Computation-Based Engineering throughout government and industry. A possible outcome of the Summit is a collective vision for using strategic industry/university/government partnerships to create a roadmap for accelerating Computation-Based Engineering implementation.

The output of the Summit will be a report that will include

- A summary of presentations, discussions and findings by Summit participants
- Identification of potential next steps for studies, collaboration, action and advocacy
- Opportunities for supporting NAE's subsequent use and extension of Summit products

We invite you to join us! Participants and their institutions will benefit from

- understanding better how to utilize modeling and simulation effectively
- honing their vision for the future of engineering as it applies to their own enterprises
- helping to achieve national competitiveness and innovation goals
- helping to influence important national research, engineering and business agendas
- working together to overcome the barriers to Computation-Based Engineering

AGENDA

Tuesday January 22, 2008

6:00 pm	Social Mixer
7:00 pm	Dinner followed by keynote speakers, Chuck Vest and Tom Hunter

Wednesday January 23, 2008

8:00 am	Breakfast
9:00-10:30 am	Invited speakers who will relate their real-life CBE stories
10:30 am	Break
10:45-11:45 am	Identify barriers to CBE implementation in small groups
11:45 pm	Break
12:00-1:00 pm	Lunch and discussion of "special topics" around the lunch table
1:00-1:45 pm	Groups report back on barriers and special topic discussions
1:45 pm	Break
2:00-3:00 pm	New small groups propose roadmaps for overcoming barriers
3:00-4:00 pm	Groups report back; consensus views are noted, views are collected
4:00-5:00 pm	Discuss path forward

Thursday January 24, 2008

8:00 am	Breakfast for Steering Committee members, NAE and Sandia facilitators
9:00-11:30 am	The Steering Committee, NAE and Sandia facilitators, and any interested Summit participants meet in the morning to summarize Summit outcomes and outline report

KEYNOTE SPEAKERS, Tuesday evening January 22, 2008

Charles M. Vest
President of
MIT

Thomas O. Hunter
President of
Sandia Corporation