Mathematics in industry: challenges and frontiers: a process view: practice and theory

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Abstrak

The papers were elicited primarily from Mathematics for Industry: Challenges and Frontiers, a conference sponsored by SIAM in October, 2003. This conference was different from other SIAM conferences in that it was a forum for scientific experts from industry and government to meet with members of the mathematical community to discuss the visions they had for their industries and the obstacles they saw to reaching those goals.

A distinctive feature of this work is its organization. The three sections: Industrial Problems; Mathematical Responses to Industrial Problems; and The Process of Mathematical Modeling, Practice, and Education offer a process view, always initiated by a practical problem, leading to the need for responsive mathematics both at the research and educational levels. All topics are tightly integrated with contemporary computing technology. Mathematical topics include splines, modeling, computational fluid dynamics, statistical model verification, and mathematics for design and simulation.