



Full-field experimental measurements in extreme loading environments for property extraction and simulation validation

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Acknowledgments

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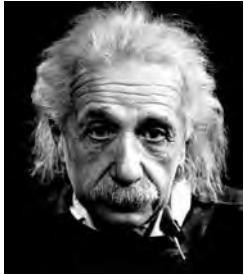
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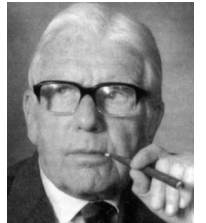


Model vs. Experiment

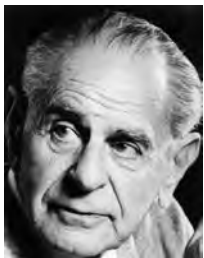


“You make experiments and I make theories. Do you know the difference? A theory is something nobody believes, except the person who made it. An experiment is something everybody believes, except the person who made it.”

— Albert Einstein (Remark to scientist Herman Francis Mark)



“The scientific theorist is not to be envied. For Nature, or more precisely experiment, is an inexorable and not very friendly judge of his work. It never says "Yes" to a theory. In the most favorable cases it says "Maybe", and in the great majority of cases simply "No". If an experiment agrees with a theory it means for the latter "Maybe", and if it does not agree it means "No". Probably every theory will someday experience its "No" - most theories, soon after conception.” — Albert Einstein



“In the empirical sciences, which alone can furnish us with information about the world we live in, proofs do not occur, if we mean by 'proof' an argument which establishes once and for ever the truth of a theory.”

— Philosopher of Science Karl Popper



“All models are wrong but some are useful”.

— Statistician George EP Box

Outline

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- **Boundary measurements:**
 - Dynamic shear cracking
- **Cohesive properties:**
 - Full-field measurements
 - Inverse problem extraction
- **Coupled problem: Thermoacoustic fatigue**
 - Image decomposition methods

