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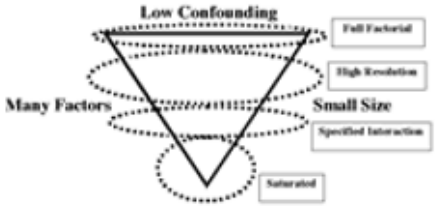
Professor of Mechanical Engineering
Professor of Materials Science

AOI
Processing, structure, and property relationships
Experimental design
Biomaterials and biomechanics

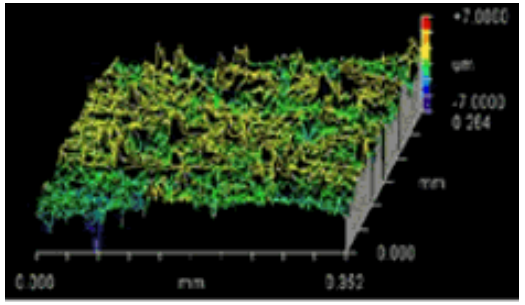
Experimental design



The "experimental triangle" helps understand some of the strategies and trade-offs involved in experimental design.

Dealing with variability in materials and processes has led me to a strong interest in experimental and robust design methods. I work with research groups in all areas to better, and more efficiently, explore design and experimental spaces.

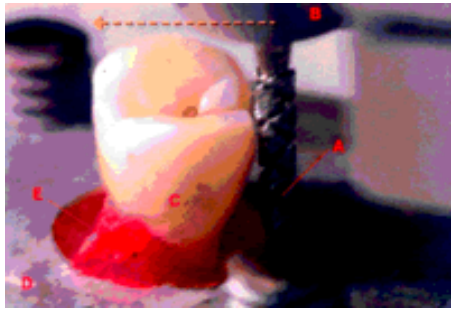
Processing, structure, and property relationships



Working surface of a metal-matrix, diamond abrasive grinding tool.

Study of microstructure-property relationships tells us how materials "work" and how they can be improved. Processing studies allow this information to be put to practical use in fabricating materials with improved microstructures and, therefore, properties.

Biomaterials and biomechanics



Bur making contact with a tooth during a during a simulated dental cutting procedure.

Biology adds increased variability and uncertainty to the processing, structure, and property relationships important in conventional engineering materials. We work with medical, dental, and biomedical researchers to better understand biological materials and processes.