IOWA STATE UNIVERSITY
Agricultural and Biosystems Engineering

David Grewell

Assistant Professor

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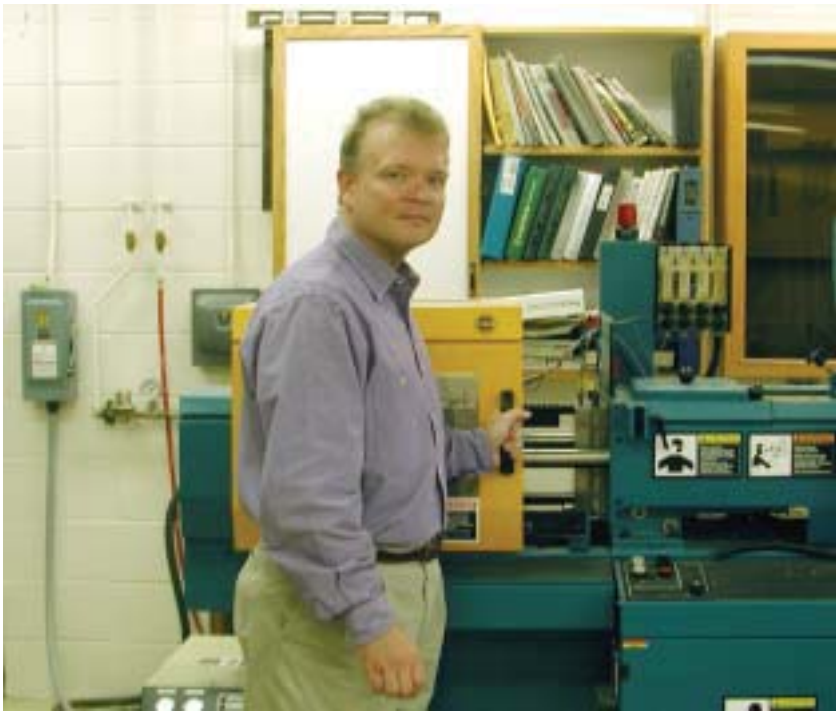
Education
Ph.D. Industrial, Welding and Systems Engineering, 2005
The Ohio State University

M.S. Industrial, Welding and Systems Engineering, 2002
The Ohio State University

B.S. Industrial, Welding and Systems Engineering, 1989
The Ohio State University

Honors and Awards
17 US patents
Best Paper Award, ANTEC 2006, SPE
Best Paper Award, ANTEC 2004, SPE
Phi Kappa Phi OSU Honors Society, 2003
Procter and Gamble Graduate Research Award , 2001
Best Paper Award, ANTEC 1997, SPE

Recent Publications
A. Y. Yi, Y. Chen, F. Klocke, G. Pongs, A. Demmer, D. Grewell, A. Benatar, A High Volume Precision Compression Molding Process of Glass Diffractive Optics by Use of Micromachined Fused Silica Wafer Mold and Low Tg Optical Glass, Accepted July 2006, Journal of Micromechanics and Microengineering
D. Grewell, A. Benatar, Coupled Temperature, Diffusion and Squeeze Flow Model for Interfacial Healing Predictions, SPE ANTEC conference, 2006
M. Vlad, G. Harmon, D. Grewell, A. Benatar, Weldability of Bio-Renewable Ultrasonic Exfoliated Nanocomposites, SPE ANTEC conference, 2006
Chunmeng Lu, David Grewell James Lee, Avraham Benatar, Analysis of Laser/IR-Assisted Microembossing, Polymer Engineering and Science, 2005, 661-666, 45.6, Society of Plastic Engineers, Brookfield, CT
Val Kagan, David Grewell, Relationship Between Optical Properties and Optimized Processing Parameters for Through-transmission Laser Welding of Thermoplastics, Journal of Reinforced Plastics and Composites, The American Society for Composites, 2004, Vol 23, No 3, pages 239-247, Dayton, OH
Part Design for Assembly, Chapter on Laser Welding, Hanser Publications, Munich Germany, 2003
Plastic and Composite Welding Handbook, Editor and Co-author, 2003
David Grewell, A Prototype "Expert" System for Ultrasonic Welding of Plastics, Plastics Engineering, February 1999, Vol. LV, No. 2, pages 33-3, Brookfield, CT



Teaching

Dr. Grewell teaches courses focused on manufacturing and with an emphasis on polymer processing, including process optimization, troubleshooting and modeling. He also teaches graduate classes focused on heat flow, fluid dynamics, material modeling and engineering fundamentals.

Research

Dr. Grewell's research team work on the following main focuses areas:

Bio-plastics
In this work, naturally derived proteins from corn and soybeans are compounded and processed to form bio-degradable, bio-renewable polymers. The research includes, formulation, processing and application development.

Bio-fuels
Based on the worlds need for "green" renewable fuels Dr. Grewell's team is developing and characterizing the use of high power ultarsonics to enhance bio-fuels. Substrates ranging from corn to switch grass to soy-oils have been studied to enhance ethanol and bio-diesel fuels.

Bio-Mass treatment
In this work, high powered ultrasonics are used to treat municipal waste to enhance treatment and methane production. This work also include the treatment of animal waste.

Micro-fabrication
In this work, novel techniques for micro-fabrications on polymer substrates have been developed. These techniques are used to fabricate "labs-on-a-CD" for rapid, low costs frequent testing of various pathogens.

Ultrasonic welding
Based on fundamentals, polymer and metallic welds are modeled and characterize. The goal of this work it develop technology for aluminum cars, bio-renewable polymer packaging and environmentally consensus products.