



Faculty Member

Timken Foundation Center for Precision Manufacturing

Contact Information



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Research Interests

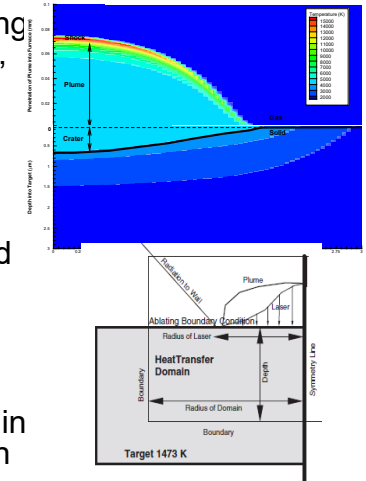
- Computational heat transfer and fluid mechanics
- Chemical vapor deposition
- Laser ablation, cutting and drilling
- Jets, jet impingement and mixing in reactors
- Die modeling and optimization for extrusion
- Micro- and nano- scale thermal and fluid dynamics
- Radiation, convection and conduction heat transfer
- Aerodynamics, turbulence, combustion and flow control

Sample Research I: Laser-matter interaction

• Laser irradiation of surfaces is utilized in many processes including military weapons, micromachining, nanoparticle formation, surface cleaning, and various medical procedures.

• Phenomena of absorption and scattering of laser beams by previously ablated plumes is called the shielding effect. Shielding by particles/droplets and by plasma were modeled.

• Coupled model of laser ablation, crater formation and heat transfer in solid was developed for Al, Carbon and organic tissue



Sample Research II:

Microfluidics and chemical vapor deposition

We obtain the rate of chemical vapor deposition, particle capture efficiency, needed pressure difference

