

Background:

Purdue University – Professor 2000- Current
 Northwestern University – Post Doctorate 1998-2000
 University of Michigan – PhD MSE 1995-1997
 Worked 5 years in LO Area for Aerospace Industry
 University of Texas at Arlington – BS ME 1983-1987

Expertise:

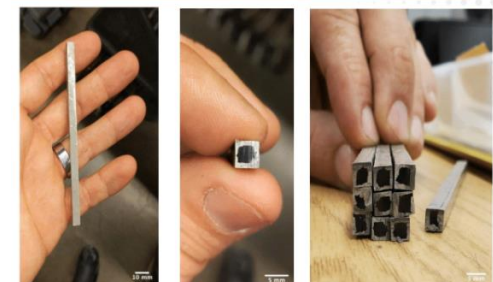
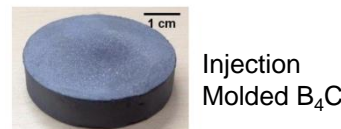
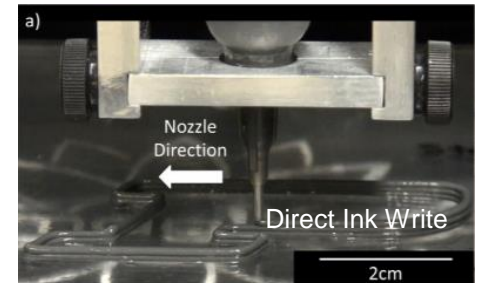
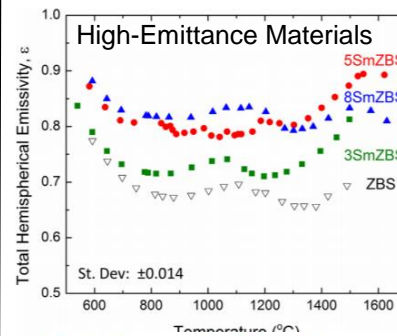
Materials
 ZrB_2 , Si_3N_4 , Al_2O_3 , B_4C , SiC , ZrO_2 , CMCs, etc

Ceramic Processing
sintering, rheology, additive manufacturing, direct ink writing, injection molding, co-extrusion, plasma spray, suspension plasma spray

Testing
35 years mechanical testing at elevated temps, thermal analysis, failure/stress analysis, ablation testing

Current Research:

1. Additive Manufacturing of C/C Composites for Hypersonic Flight (w/Prof. Pipes; AFRL)
2. Direct Ink Writing of B_4C/SiC for Ballistic Applications (w/Prof. Youngblood)
3. Rare-Earth Co-Stabilized Cubic Zirconia for Hypersonic Flight (w/Prof. Martinez; ONR)
4. IR Window Development for Hypersonic Flight (w/Prof. Martinez/Averyonna Kimery – Draper Grad Fellow and Sponsor Dr. David Carter of Draper)
5. Multiscale High-Temperature Heat Exchangers Using Ceramic Co-Extrusion (w/Prof. Youngblood; MIT/ ARPA-E)
6. Forming Transparent Ceramics via Alumina Alignment (w/Prof. Youngblood; ARO)
7. Scale-up of Boron Carbide Armor Plate Production for Ballistic Performance (w/Prof. Youngblood; CTTSO)



Extrusion Forming of Complex Structures