Converting fuels to thermal energy through combustion will remain a critical part of our energy future for at least the next 50 years. The next decade, however, will bring significant changes in the fuel supply and tighter regulations on emissions from combustion devices.

Dr. Janet Ellzey's group is studying processes and developing technologies to address these challenges. Through conversion of hydrocarbons to syngas, her group is understanding ways to produce hydrogen for use in fuel cells and combustion engines. Development of a commercially viable reactor is a crucial component of developing this technology. Applications of this reactor to portable power are particularly promising, but advanced manufacturing techniques are necessary to produce compact reactors. Along with combustion sciences, the Ellzey group also carries out armature/rail gun research at the University’s Pickle Research Campus.

**The team**

**Patryk Radyjowski**
Ph.D. student
Additive Manufacturing of Combustion Devices
Email: patryk DOT radyjowski AT gmail DOT com

**Avery Brooks**
Undergraduate Research Assistant
Additive Manufacturing - SLS
Smoldering Combustion - experiments

**Larissa Herold**
Undergraduate Research Assistant
Science Communication
Smoldering Combustion - experiments

**Contact and Visit**

**Dr. Janet Ellzey**
Professor, Mechanical Engineering
Engineering Foundation
Centennial Teaching Fellow

ETC 7.148B
Department of Mechanical Engineering
University of Texas
Austin, TX 78712
Ph: 512 471 7020
Fax: 512 471 1045
Email: jellzey AT mail DOT utexas DOT edu

Prof. Ellzey received her BS and MS degrees from the University of Texas at Austin and her PhD from University of California at Berkeley. After working at the University of Wisconsin-Madison and the Naval Research Laboratory in Washington DC, she joined the faculty of Mechanical Engineering at the University of Texas in 1990. She has worked on various problems in combustion and fluid mechanics and now focuses on environmental technologies. Her current research efforts include non-catalytic reforming of biofuels, additive manufacturing of compact reactors for use in portable power, and smoldering of biomass.

Prof. Ellzey is an avid traveler and spends 6 weeks a year in France teaching a course to UT students on international standards and environmental regulation. She speaks French and is an admirer and student of French cuisine.
Advaitha Byerreddy
Undergraduate Research Assistant (part-time)
Additive Manufacturing - SLS
Biomass smoldering
Porous media thermal disperions