

August 9-10, 2007

# 2007 Ohio Student Research Forum

Wright State University  
Dayton, OH

## RESEARCH ABSTRACT FORM

**TITLE:** The Unknown Facts of Shape Memory Polymer with Regards to Thermal Conductivity

**AUTHOR:** Joe F. Bozeman III, Marlon Twyman II, Dr. Ruby Mawasha, and Kumar Yelamarthi

**MENTOR(S):** Dr. Ruby Mawasha

**DEPARTMENT(s):** College of Engineering

**INSTITUTION:** Wright State University

---

SMP stands for Shape Memory Polymer. In essence, SMP is an elastic memory matrix that is a fully cured polymer which can be combined with a wide variety of fiber or fillers. The material's most unique functionality is its ability to change form and retake its shape numerous of times strictly dependent upon temperature change. The objective is to observe the material's physical behavior while documenting its character in regards to thermal conductivity. The research concluded that the Veritex, SMP composite is more conducive on its perimeter sections than its central sections if the heating source is placed at the center of the material. The calculations, graphs, and values of thermal conductivity with respect to time and temperature stand as a staple for the real, applicable situations that SMP can potentially be placed in.