

## Hong Zhuang

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### **EDUCATION:**

**Ph.D., Chemistry**, May 1998, Emphasis: polymer chemistry.

Virginia Polytechnic Institute & State University, Blacksburg, VA.

Major Advisor: Dr. James E. McGrath.

Title of Dissertation: Synthesis and Characterization of Thermoplastic and Thermosetting Polyimides.

**MS, Chemistry**, May 1995, Emphasis: adhesion science.

Virginia Polytechnic Institute & State University, Blacksburg, VA.

Major Advisor: Dr. James P. Wightman.

Title of Thesis: The Influence of Surface Properties on Carbon Fiber/Epoxy Matrix Interfacial Adhesion.

### **RESEARCH ACTIVITIES:**

- Synthesis and characterization of end functionalized thermosetting polyimides with designed processing and curing temperatures
- Synthesis and characterization of thermoplastic polyimides with high fire resistance potential
- Synthesis and characterization of reactive functionalized thermoplastic polyimide as a toughening material for brittle epoxy and bismaleimide thermosets
- Investigation of interfacial adhesion, and the effect of surface treatment and surface properties on adhesion and adhesion durability
- Material characterization by spectroscopic, chromatographic, thermal, and mechanical behavior
- Synthesis, purification, and characterization of novel monomers for network formation and improving fire retardancy of polymeric materials

#### **MAJOR PUBLICATIONS:**

**Zhuang, H.**, Sankarapandian, M., Ji, Q. and McGrath, J. E., “New structural adhesives functionalized with end groups of controlled reactivity” Proc. Annu. Meet. Adhes. Soc., **21**, 10, 1998.

**Zhuang, H.**, Tan, B., Tchatchoua, C., Ji, Q., Ghassemi, H. and McGrath, J. E., “Influence of diphenyl methyl phosphine oxide diamine incorporation on the synthesis, physical and fire resistant behavior of thermoplastic polyether imides” Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **38** (1), 304, 1997.

**Zhuang, H.** and Wightman, J. P. “The influence of surface properties on carbon fiber/epoxy matrix interfacial adhesion”, J. Adhesion, **62**, 213-246, 1997.

Ji, Q., Kwon, O., **Zhuang, H.**, Liu, Y. N., Muggli, M., Kwan, K., Ward, T. C. and McGrath, J. E. “Modification of epoxy resins by secondary amino-terminated poly(dimethylsiloxane)”, Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **38** (1), 107, 1997.

Liu, Y. N., Bhatnagar A., Ji, Q., **Zhuang, H.** and McGrath, J. E., “Synthesis and characterization of poly(phenylene sulfide sulfone). Part I”, Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **38** (1), 109, 1997.

**Zhuang, H.**, Oyama, H., Bucher, R., Hochella, M., Lesko, J. J., Loos, A. C., McGrath, J. E., Reifsnider, K., and Wightman, J. P., “Pretreatment of carbon fibers: Surface characterization and effect on fiber/matrix interfacial adhesion and composite properties”, Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) **36**(1), 819, 1995.

**Zhuang, H.** and Wightman, J. P., “Carbon fiber/matrix adhesion in high performance composites: the influence of carbon fiber surface properties” Proc. Annu. Meet. Adhes. Soc., **18**, 98, 1995.