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*Curriculum Vitae*  
**Jeffrey T. Gotro, Ph.D**

Areas of Expertise:

- Specialty in polymers (plastics); chemistry, physics, characterization
- Polymer (plastics) product liability, fitness for use
- Polymer (plastics) material selection, including thermosets and thermoplastics
- Intellectual Property litigation; patent infringement analysis
- Expert in polymers used in electronic applications
  - Adhesives, coatings, laminates, underfills, polymer composites
- Specialist in thermosetting polymers
  - Epoxy, acrylics, polyimides, cyanate esters (curing reactions)
  - Thermal analysis, mechanical property determination
  - Rheology (chemorheology) and flow of polymers/plastics
  - Process evaluations (dispensing, coating, lamination, molding)
- Epoxy pipe linings; IP litigation and product liability
- Floor coatings; formulation (epoxy and acrylic), applications, and product liability
- Thermoplastic lamination; applications and patent infringement
- Plastic skylight; polymer material selection, UV exposure, and polymer characterization
- Construction defect; polymeric sealants and window flashing
- Expert witness, litigation support, consulting
- Over 30 years in the field of polymer science

Education:

- Ph.D. in Materials Science with specialty in Polymer Science; 1983
  - Northwestern University, Evanston, IL
- B.S. in Mechanical Engineering and Materials Science; 1977
  - Marquette University, Milwaukee, WI

Litigation Support Experience:

- Sixteen cases involving product liability, where a polymer product failed in use, deposition and litigation support (11 cases completed, 5 cases ongoing)
- Eight cases involving Intellectual Property; patent infringement, patent reexamination, deposition and litigation support (1 case ongoing, 7 cases completed)

Professional Summary

**InnoCentrix, LLC Rancho Santa Margarita, CA**  
**President and Founder**

**2008 - present**

Management and technical consulting firm specializing in polymers and innovation. Provide consulting services to enable clients to increase the financial impact of their existing or new polymer technologies. Our team has a strong combination of deep polymer expertise combined with a solid focus on delivering value to our clients. Provide Intellectual Property Management process to ensure client's key IP assets are leveraged for business impact. InnoCentrix also has expertise in solving complex polymer-related product and process problems. Provide litigation support and expert witness services in the area of polymers.

InnoCentrix Consulting History:

- Formulated two new epoxy floor coatings, designed manufacturing process to make the two-part epoxy system, process debug and start-up enabling higher profitability
- Provided technical consulting to an epoxy composite manufacturer having significant scrap and yield loss problems. Completed process audit, identified and implemented corrective actions in the manufacturing process to eliminate recurring defects
- Completed process optimization for an epoxy composite manufacturing process that led to a significant decrease in customer lead time due to higher capacity utilization.
- Provide ongoing technical consulting/coaching and materials selection for several advanced adhesive applications in a medical device application. Assessed current adhesives, developed testing protocols, evaluated new adhesive candidates, in qualification.
- Developed customized Design of Experiments (DOE) training for an adhesive formulation company, taught factorial, response surface, and mixture design of experiments. Client used the Design of Experiments methods to formulate several complex thermoset resin compositions (thermal and UV curing) for electronic applications. In customer evaluations and qualification.
- Provided formulation coaching to the client to use these tools to develop a series of new product architectures resulting in several new products:
  - Completed the development of a thermally conductive, aluminum filled adhesive for an advanced electronic application. Provided formulation strategy, developed mixing and manufacturing process, sampled customer, in qualification.
  - Completed the development of an electrically conductive, silver filled adhesive for an advanced electronic application. Provided formulation strategy, developed mixing and manufacturing process, sampled customer, in qualification.
- Provide on-going formulation coaching, design of experiments, scale-up and large scale manufacturing for multiple new products using thermoset chemistry and advanced filler technology leading to multi-million dollar revenues.
- Provided formulation guidance and processing recommendations during the development of an electrically conductive, printable, fired paste for a solar application. Resulted in a significantly improved adhesion and more consistent process allowing customer sampling.
- Completed a detailed characterization of an epoxy encapsulant used in a hostile environment (down hole mining application) including physical testing, process improvements and optimization of the curing process
- Developed customized two day training on processing and characterization of thermosets used in advanced composite applications. The training enabled the process engineers and chemists to respond quickly to customer and process issues.

- Developed a customized three part webinar series covering thermosets used in sheet molding compounds (SMC) and bulk molding compounds (BMC), characterization and processing.
- Provide ongoing technical updates to a global semiconductor assembly and test company on new advances in polymers for electronic applications. Provide on-demand consulting on a retainer basis.
- Technical consulting for a division of a multi-billion dollar Korean company on epoxy polymers used for encapsulation in hostile, high shock end use application
- Failure analysis for epoxy composite laminate. Identified type and chemical composition of particulate contaminant that caused significant yield loss. Implemented corrective actions to mitigate future occurrences
- Completed technology assessment and new business development project for a Fortune 100 chemicals company. Identified potential market entry points for polymer technologies
- Completed a detailed patent landscape for a large specialty chemicals business unit to identify potential market entry points and product development opportunities for new adhesives, coatings, and polymers in the electronic materials market
- Investigated technical feasibility of replacing a fossil-fuel based polymer with a biopolymer made from renewable sources, developed product development and market entry strategy
- Conducted technology assessment, develop acquisition strategy, and identify strategic acquisition targets for a multibillion dollar specialty polymers company
- Technical consulting on the development of a conductive adhesive for electronic application for an emerging technology company in Silicon Valley
- Technical and new business development consulting for a nanotechnology start-up. Identified and established joint development programs to bring an exciting nanotechnology to the electronic materials market. Co-inventor on one patent application filed during the engagement
- Provided polymer materials selection and characterization consulting for a mid-sized medical device company
- Developed a patent strategy after evaluation of a series of patents acquired by the client company. Assessed the technology and market potential
- Technical consulting to solve an ongoing technical problem for a user of thermosetting polymers for an underground mining application. Co-inventor on one patent application filed during the engagement
- Completed a comprehensive assessment of the polymer life cycle analysis and sustainability for ingredients used in consumer formulations for a global multi-billion dollar corporation
- Materials selection for a solar start-up. Identified thermoset materials, manufacturing process, and identified potential manufacturing partners
- Completed a white paper on “Establishment of R&D capability in Shanghai, China” for a major, multinational medical device company
- Technical consulting and patent strategy evaluation for a new type of adhesive for beverage can production for a multi-billion dollar European company
- Technical and new business development consulting to a technology start-up in materials for thermally conductive printed circuits boards. Co-inventor on three patent applications filed during the engagement
- Technical and new business development consulting to a division of a multi-billion dollar multinational corporation on materials and applications of novel thermoset polymers and organic reinforcements

**Ablestik Laboratories, Rancho Dominguez, CA**  
***Vice President, Technology***

**2005-2008**

Ablestik Laboratories (Now Henkel Electronic Materials) is the global market leader providing advanced adhesives, coatings, underfills, and specialty polymer materials for electronic applications. Led a 100 person R&D staff and 29 applications engineers responsible for global product development and engineering. Developed expertise in adhesives, underfills, coatings, and encapsulants. Established R&D Laboratory in Shanghai, China to be close to customer-base and commercialized three new products in the first year. Commercialized over 30 new products over a two year timeframe, leading to approximately \$2 million revenues in the first year.

***Director, Research and Development***

**2003-2005**

Responsible for long term research and product development for polymeric materials used in semiconductor packaging (adhesives, underfills, coatings, and encapsulants). Reported to VP of R&D and managed a group of 25 scientists, engineers and technicians. Worked collaboratively with marketing to design and establish a comprehensive intellectual property process to manage/disposition inventions, resulting in 65% of products covered by patents. Improved technology delivery by focusing applied research on developing customer-targeted product science platforms, enhancing the formulation toolbox, enabling the development of new, differentiated products.

**The Gotro Group, Trabuco Canyon, CA**  
***President***

**2001-2002**

Founded consulting practice to help advanced polymer companies achieve a competitive advantage through new product development, customer-focused application of new material technology, technical problem solving, and intellectual property strategy development. Provided expert witness analysis and deposition regarding a product liability case, identified failure mechanism in polymeric materials, and provided technical guidance to plaintiff attorney.

**Honeywell Electronic Materials, Costa Mesa, CA**

**1998 - 2001**

***Director of Technology***

Responsible for product development engineering, materials technology, technical marketing and pilot line operations support. Reported to VP/GM and led a team of 20 scientists, engineers and technicians developing a high-density multilayer ball grid array (MLBGA) substrate. Served as the technology integration team leader after the acquisition of Johnson Matthey Electronics by AlliedSignal Electronic Materials. Developed intellectual property strategy to build a patent thicket around newly developed polymer and process technology. Continued to develop expertise in laminate technologies (thermosetting polymer composites) for electronic packaging.

**AlliedSignal Laminate Systems, La Crosse, WI**  
***Product Technology Skill Center Leader***

**1995 to 1998**

Led the research, development and commercialization of new products for a \$400 million business unit. Reported to VP of Technology. Managed 12 direct reports consisting of Ph.D. scientists, product development engineers and lab technicians. Was active in the Strategic

Planning process, Annual Operating Plan, and Management Resource Review (employee appraisal and career development) process.

**Aeroquip Corporate Technology Laboratory, Ann Arbor, MI** **1994 to 1995**  
**Consulting Scientist**

Conducted research and product development for a provider of high technology fluid control equipment, acquiring skills stage/gate new product development processes and new business development. Developed prototypes, optimized design, and scaled-up manufacturing for a pharmaceutical high-purity transfer device and reduced the development time by two-thirds utilizing designed experiments (DOE's).

**IBM Inc., Materials Engineering Laboratory, Endicott, NY** **1982 to 1993**  
**Advisory Scientist**

Conducted scientific research in rheology, curing, formulating, and processing of thermosetting polymers used in leading edge electronic packaging applications. Developed significant expertise in advanced polymer characterization and processing of epoxy, cyanate ester, polyimide, and other high-performance polymers. Co-invented a new class of toughened cyanate resins resulting in nine patents issued covering composition of matter and applications.

*Honors and Awards*

**John A. Wagon, Jr. Technical Achievement Award (2014), International Microelectronics and Packaging Society (IMAPS)** awarded in recognition for numerous and sustained technical contributions in the area of polymers used in the Microelectronics and Electronics Packaging industries.

**Fellow of the Society, International Microelectronics and Packaging Society (IMAPS), 2014** Elected Fellow in recognition of his years of dedication and support of IMAPS in multiple leadership roles and for his numerous technical contributions to the Society.

**National Starch and Chemical Company, CEO Award (2004)** presented to the highest performing Strategic Business Unit in the National Starch and Chemical Company. The award was presented to the leadership team of Ablestik Laboratories in recognition for performance excellence in safety, innovation (growth in new products), financial delivery (sales and profitability), and community involvement.

**National Starch and Chemical Company, Corky Caldwell Innovation Award** for the development of a market-changing new printable paste die attach adhesive achieving greater than \$40 million in sales within three years after commercialization.

**Honeywell Technical Achievement Award** for leading the development of UltraStable BondPly a material and process used to fabricate multilayer flip-chip packaging substrates

**AlliedSignal Management Award** for leading the development of FR406BC, an enhanced buried capacitance laminate for multilayer printed circuit boards.

**IBM Outstanding Technical Achievement Award** for "Development of Lamination Process Fundamentals"

Three **IBM Invention Achievement Awards**

**IBM Technical Excellence Award** for eliminating defects in the printed circuit board manufacturing process resulting in two year savings of \$10 million

Seventeen **IBM Publication Achievement Awards** for technical papers published in scientific journals and conference proceedings

**Pi Tau Sigma**, Honorary Mechanical Engineering Fraternity, inducted in 1977  
Dean's Award, Outstanding Senior in Materials Science, Marquette University

**Sigma Xi**, The Scientific Research Society, inducted in 1989

**Society of Plastics Engineers Distinguished Service Award** for contributions as Chairman of the Polymer Analysis Division from 1990-1992

### Professional Affiliations

**Adjunct Professor**, Syracuse University, Department of Chemical Engineering and Materials Science, 1986-1993

**Instructor**, California State University at Fullerton, Six Sigma Green Belt and Black Belt courses, 2001-2006

**Adjunct Professor**, Concordia University, Irvine CA, taught course in MBA program on New Product Innovation, 2008-2011

**Instructor**, Professional Development Courses

- 1) International Microelectronics and Packaging Society (IMAPS)
  - a. Professional Development Course "Polymers in Semiconductor Packaging" at the Device Packaging Conference in 2011- 2013, 2015-2018
  - b. Professional Development Course "Polymer Challenges in 2.5D and 3D Packaging" at the Device Packaging Conference in 2014
  - c. Professional Development Course "Polymers in Electronic Packaging" at the annual IMAPS National Conference in 2010 - 2016
  - d. Three-part webinar series on "Polymers in Semiconductor Packaging"
  - e. Three Part webinar Series on "Rheological Issues in Electronic Packaging"
- 2) Electronic Components and Technology Conference (ECTC)
  - a. Professional Development Course "Polymers in Electronic Packaging" presented annually from 2012 -2017
- 3) North American Thermal Analysis Society (NATAS)
  - a. Professional Development Course on "Rheology as a Thermal Analysis Technique" in August, 2012

### **Professional Technical Society Memberships**

- Forensic Expert Witness Association (FEWA) 2009-present
- American Chemical Society (ACS) 1981- present
- International Microelectronics Assembly and Packaging Society (IMAPS) lifetime member
- Society of Plastics Engineers (SPE) 1988-1999 and 2010 – present
  - Polymer Analysis Division; Chairman 1990-1992, Treasurer 1993-1999, Board of Directors 1988-1999
- Society for the Advancement of Material and Process Engineering (SAMPE) 2013-present
- Institute of Management Consultants (IMC) 2008 – present
- Institute of Electrical and Electronic Engineers (IEEE), Electronics Packaging Society, 2017

### Patents

- 1) 5,523,148; Multilayer article comprising a toughened polycyanurate with embedded electrically conductive patterns
- 2) 5,527,592; Multilayer article having a planarized outer layer comprising a toughened polycyanurate
- 3) 5,527,593; Structures fabricated from toughened polycyanurate
- 4) 5,527,838; Toughened polycyanurate resins containing particulates
- 5) 5,529,836; Multilayer article comprising a toughened polycyanurate
- 6) 5,548,034; Modified dicyanate ester resin having enhanced fracture toughness
- 7) 5,562,727; Intraluminal stent and method of insertion thereof
- 8) 5,599,611; Prepreg and cured laminate fabricated from a toughened polycyanurate
- 9) 5,827,907; Homo-, co-, or multicomponent thermoplastic polymer dispersed in a thermoset resin
- 10) 5,834,537; Homo-, co-, or multicomponent thermoplastic polymer dispersed in a thermoset resin
- 11) 6,225,373; Homo-, co-, or multicomponent thermoplastic polymer dispersed in a thermoset resin
- 12) 6,242,078; High Density printed circuit substrate and method of fabrication
- 13) 6,255,039; Fabrication of high density multilayer interconnect printed circuit boards
- 14) 8,432,036; Lead frames with improved adhesion to plastic encapsulants
- 15) 9,120,614; Method for preserving the firmness and internal pressure of a resin cartridge and improving the shelf-life of a resin cartridge

4 patent applications currently filed and pending in the United States Patent and Trademark Office. 9 Inventions published in the IBM Technical Disclosure Bulletin.

### Publications

#### **Book Chapters**

- 1) **"Polymers and Polymer-Based Composites for Electronic Applications,"** with G. Schmitt and B. Appelt, in Principles of Electronic Packaging, McGraw Hill Book Company, New York, New York, (1989)
- 2) **"Correlation of Glass Transition Temperature, Conversion, and Viscosity During Epoxy Resin Curing"**, with B. Fuller and G. Martin, Advances in Chemistry Series, #227, Polymer Characterization: Physical Property, Spectroscopic, and Chromatographic Methods, p. 215, American Chemical Society, Washington DC (1990).
- 3) **"Modeling the Rheological and Dielectric Properties During Thermoset Cure,"** with A. Tungare and G. Martin, Advances in Chemistry Series, #227, Polymer Characterization: Physical Property, Spectroscopic, and Chromatographic Methods, p. 235, American Chemical Society, Washington DC (1990).
- 4) **"Thermosets"** in Encyclopedia of Polymer Science & Technology, with R. B. Prime, (2017) John Wiley & Sons, NY.

#### **New Markets/Applications**

- 1) **"An Improved Laminate for Embedded Capacitance Applications,"** with J. Kamla, Anh-Vu Le, M. Dhillon, J. Howard, and J. Young, Proceedings of the IPC Technical Conference, p. S04-3-1, March (1999)
- 2) **"Advanced Laminates for High Density Interconnect Substrates,"** with G. Smith, N. Androff, B. Bedwell, E. Craddock, and R. Clancy, Proceedings of SEMICON WEST, July 1999.

### New or Improved Materials

- 1) **“High Performance Polycyanurate Thermosets,”** with J. C. Hedrick and A. Viehbeck, *Proceedings of the American Chemical Society, Polymer Chemistry Division, Polymer Preprints*, v. 35(1) p. 537 (1994).
- 1) **“Toughened Polycyanurate Thermosets Possessing Tailorable Glass Transitions,”** with J. C. Hedrick and A. Viehbeck, *Proceedings of the American Chemical Society, Polymer Materials; Science and Engineering*, v. 7(2), p. 746 (1994).
- 3) **“A New Multifunctional High Performance Epoxy Resin for MCM-L Applications,”** with R. Japp and T. Lewis, *Proceedings of the Fall IPC Meeting*, October 24-28 (1993).
- 4) **“Thermoplastic Toughened Cyanate Ester Resins: An Interesting Low Dielectric Constant Thermosetting Polymer,”** with J. C. Hedrick, *Proceedings of the Fall IPC Meeting*, October 24-28 (1993).
- 5) **“Characterization of a Bis-Maleimide Triazine Resin for Multilayer Circuit Boards,”** with B. Appelt, *IBM Journal of Research and Development*, v. 31, p. 616 (1988).

### Processing of Advanced Polymers

- 1) **“The Rheological Characterization of Fluorinated Thermoplastics Using Squeezing Flow Viscometry,”** with G. Martin and Y. Deng, *Polymer Engineering and Science*, v. 34, p. 213 (1994).
- 2) **“Determining the Rheological Flow Window for Thermosetting Polymers,”** with G. Kohut and G. Martin, *Society of Plastics Engineers, Technical Papers*, v. 39, p. 2614 (1993).
- 3) **“Dielectric Cure Monitoring During Composite Lamination,”** *Proceedings of the North American Thermal Analysis Society, Fall Meeting*, p. 523 (1990).
- 4) **“Simultaneous Dielectric and Dynamic Mechanical Analysis of Thermosetting Polymers,”** with M. Yandrasits, *Polymer Engineering and Science*, v. 29 p. 278 (1989).
- 5) **“Viscosity Modeling During Epoxy Resin Curing,”** with G. Schmitt and J. Wiley, *Polymer Engineering and Science*, v. 29, p. 329 (1989).
- 6) **“Analysis of Flow in Epoxy-Glass Cloth Prepregs,”** with G. Schmitt, J. Wiley, and T. Ellis, *Society of Plastics Engineers, Technical Papers*, v. 35, p. 1106 (1989).
- 7) **“Predicting the Flow Behavior of Thermosetting Resins During Processing,”** with A. Tungare and G. Martin, *Polymer Engineering and Science*, v. 29, p. 1279 (1989).
- 8) **“Chemorheological Characterization of Thermoset Cure,”** with A. Tungare and G. Martin, *Polymer Engineering and Science*, v. 28, p. 1071 (1988).
- 9) **“Modeling the Structure-Property-Processing Relationships of Epoxy Resins During Cure,”** with B. Fuller, G. Martin, and A. Tungare, *Society of Plastics Engineers, Technical Papers*, v. 35, p. 1079 (1989).
- 10) **“Correlation of Viscosity, Ionic Conductivity, and Glass Transition Temperature During Epoxy Resin Curing,”** with B. Fuller and G. Martin, *Proceedings of the American Chemical Society, Polymeric Materials; Science and Engineering*, v. 59, p. 975 (1988).
- 11) **“Modeling the Rheological and Dielectric Properties During Thermoset Cure,”** with A. Tungare and G. Martin, *Proceedings of the American Chemical Society, Polymeric Materials; Science and Engineering*, v. 59, p. 980 (1988).
- 12) **“Residual Stresses and Warpage in Woven Glass/Epoxy Laminates,”** with I. Daniel and I. Zewi, *Experimental Mechanics*, v. 27, p. 44 (1987).
- 13) **“Viscosity Modeling During Epoxy Resin Cure,”** with G. Schmitt and J. Wiley, *Society of Plastics Engineers, Technical Papers*, v. 33, p. 977 (1987).
- 14) **“The Influence of Lamination Parameters on Warpage of Woven-Glass/Epoxy Laminates,”** with D. Karalekas and I. M. Daniel, *Society of Plastics Engineers, Technical Papers*, v. 33, p. 339 (1987).
- 15) **“Thermoanalytical Investigation of Composite Lamination,”** with B. Appelt, T. Ellis, and M. Yandrasits, *Polymer Composites*, v. 8, p. 222 (1987).
- 16) **“Characterization of Resin Flow in Composites,”** with B. Appelt and T. Ellis, *Society of Plastics Engineers, Technical Papers*, v. 32, p. 371 (1986).



- 17) **"Composite Lamination - Analysis and Modeling,"** with B. Appelt, T. Ellis, G. Schmitt, and J. Wiley, *Society of Plastics Engineers, Technical Papers*, v. 31, p. 289 (1985).
- 18) **"Residual Stresses and Warpage in Circuit Board Laminates,"** with I. M. Daniel and I. Zewi, *Proceedings of the 1985 Society for Experimental Mechanics, Conference on Experimental Mechanics*, p. 19 (1985)

#### Characterization of Advanced Polymers

- 1) **"Triazine Formation in Cyanate-Based Resin Systems at Room Temperature Conditions,"** with A. Osei-Owusu, and George C. Martin, *Polymer* v. 37, p. 4869, (1996)
- 2) **"Gelation in Thermosets Formed by Chain Addition Polymerization,"** with M. Heise and G. Martin, *Polymer Engineering and Science*, v. 29, p. 83 (1990).
- 3) **"The Effects of Network Structure on the Interfacial Adhesion Between Epoxy Composites and Copper Foil,"** with B. Fuller and G. Martin, *SAMPE Quarterly*, v. 21, p. 29 (1990).
- 4) **"Thermomechanical Behavior of Multilayer Structures in Microelectronics,"** with I. Daniel and T. Wang, *Journal of Electronic Packaging, Transactions of the ASME*, v. 112, p. 11 (1990).
- 5) **"Curing Chemistry-Physical Property Relations in Bis-Maleimide Resins,"** with A. Tungare and G. Martin, *Society of Plastics Engineers, Technical Papers*, v. 36, p. 970 (1990).
- 6) **"Determination of Chemical Cure Shrinkage in Woven-Glass/Epoxy Laminates,"** with I. Daniel, T. Wang, and D. Karalekas, *Journal of Composites Technology and Research*, v. 12, p. 172 (1990).
- 7) **"Analysis of the Curing Behavior of Cyanate Ester Resin Systems,"** with A. Osei-Owusu and G. Martin, *Polymer Engineering and Science*, v. 31, p. 1604 (1992).
- 8) **"Room Temperature Reactivity and Structural Build-up in Polycyanurate Networks,"** with A. Osei-Owusu, G. Martin, M. Poliks, and J. Balko, *Proceedings of the American Chemical Society, Polymeric Materials; Science and Engineering*, v. 66 p.449 (1992).
- 9) **"Analysis of Gel Formation: An Interdisciplinary Approach,"** with M. Heise and G. Martin, *Polymer Engineering and Science*, v. 32, p. 529 (1992).
- 10) **"Catalysis and Kinetics of Cyclotrimerization of Cyanate Ester Resins,"** with A. Osei-Owusu and G. Martin, *Polymer Engineering and Science*, v. 32 p. 535 (1992).
- 11) **"Network and Rheological Properties of Cyanate Ester Resin Systems,"** with A. Osei-Owusu, G. Martin, and G. Kohut, *Society of Plastics Engineers, Technical Papers*, v. 38, p. 1162 (1992).
- 12) **"Thermoviscoelastic Analysis of Residual Stresses and Warpage in Composite Laminates,"** with T. Wang and I. Daniel, *Journal of Composite Materials*, v. 26, p. 883 (1992).
- 13) **"Characterization of Imidazole-Cured Epoxy/Phenol Resins,"** with M. Heise and G. Martin, *Journal of Applied Polymer Science*, v. 42, p. 1557 (1991).
- 14) **"The Role of Metal Catalysts on the Physical Properties of Cyanate Ester Resins Systems,"** with A. Osei-Owusu and G. Martin, *Society of Plastics Engineers, Technical Papers*, v. 37, p. 727 (1991).
- 15) **"The Chemorheology of Epoxy-Imidazole Resin Systems,"** with B. Doshi, G. Martin, and G. Kohut, *Proceedings of the North American Thermal Analysis Society Meeting*, p. 500 (1991).
- 16) **"Characterization of Bisphenol A-Based Cyanate Ester Resin Systems,"** with A. Osei-Owusu and G. Martin, *Proceedings of the American Chemical Society, Polymeric Materials; Science and Engineering*, v. 65 p. 304 (1991).
- 17) **"Determination of Chemical Cure Shrinkage in Woven-Glass/Epoxy Laminates,"** with I. Daniel, T. Wang, and D. Karalekas, *Society of Plastics Engineers, Technical Papers*, v. 35, p. 632 (1989).
- 18) **"The Physical Behavior of Imidazole-Cured Epoxy Resins,"** with M. Heise and G. Martin, *Society of Plastics Engineers, Technical Papers*, v. 35, p. 1070 (1989).
- 19) **"A Multidisciplinary Approach to the Characterization of Thermosetting Polymers,"** with B. Fuller and G. Martin, *Proceedings of the North American Thermal Analysis Society*, p. 358 (1989).
- 20) **"Thermal Characterization of a Bis-Maleimide Triazine Resin for Composites,"** with B. Appelt and K. Papathomas, *Polymer Composites*, v. 8, p. 39 (1987).
- 21) **"The Use of FTIR to Characterize Photosensitive Thermosets,"** with R. Snyder, *J. of Applied Spectroscopy*, v. 41, p. 476 (1987).
- 22) **"Cure Monitoring Using Dielectric and Dynamic Mechanical Analysis,"** *Society of Plastics Engineers, Technical Papers*, v. 33, p. 1039 (1987).

- 23) **"A Rheological Analysis of the Cure Behavior of Epoxy Resins,"** with A. Tungare and G. Martin, *Society of Plastics Engineers, Technical Papers*, v. 33, p. 330 (1987).
- 24) **"Thermal and Rheological Analysis of Epoxy Resin Cure,"** with M. Yandrasits, *Proceedings of the North American Thermal Analysis Society*, p. 309 (1987).
- 25) **"Evaluation of the Chemorheological Parameters of High Performance Resins,"** with G. Martin and A. Tungare, *Proceedings of the North American Thermal Analysis Society*, p. 418 (1987).
- 26) **"Dielectric Characterization of a Bis-Maleimide Triazine Resin for Composites,"** *Proceedings of the North American Thermal Analysis Society Conference*, p. 247 (1986).
- 27) **"Thermal Characterization of a Bis-Maleimide/Bis-Cyanate Epoxy Thermosetting Resin for Composites,"** with B. Appelt and K. Papathomas, *Proceedings of the North American Thermal Analysis Society*, p. 168 (1985).
- 28) **"Role of Chain Microstructure on the Melt Rheological Properties of an Ethylene-Propylene Copolymer,"** with W. W. Graessley, *Proceedings of the American Chemical Society, Polymer Chemistry Division, Polymer Preprints*, v. 23, p. 38, (1982).
- 29) **"Model Hydrocarbon Polymers: Rheological Properties of Linear Polyisoprenes and Hydrogenated Polyisoprenes,"** with W. W. Graessley, *Macromolecules*, v. 17, p. 2767, (1984).
- 30) **"Thermorheological Effects of Long Chain Branching in Entangled Polymer Melts,"** with J. M. Carella and W. W. Graessley, *Macromolecules*, v. 19, p. 659, (1986).

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