

BIOGRAPHICAL SKETCH

of

Anne Hiltner

ADDRESS

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EDUCATION

Reed College, Portland, OR, B.A., 1963 (Chemistry)
Oregon State University, Corvallis, OR, Ph.D, 1967 (Physical Chemistry)
Case Western Reserve University, Cleveland, OH, Research Associate 1967-71
(Polymer Science)

EXPERIENCE

1971-74 Senior Research Associate, Department of Macromolecular Science, Case
1974-79 Assistant Professor, Department of Macromolecular Science, Case
1979-83 Associate Professor, Department of Macromolecular Science, Case
1981-present Director, Center for Applied Polymer Research (CAPRI), Case
1983-present Professor, Department of Macromolecular Science, Case
2004-present Herbert Henry Dow Professor of Science and Engineering, Case
2006-present Director and Co-Director, NSF Science and Technology Center for Layered
Polymeric Systems
1984-present Adjunct Professor, Polymer Engineering, University of Akron, Akron, OH
1988 Visiting Lecturer, Department of Materials, Technion, Haifa, Israel
2001-present Editor-in-Chief, Journal of Applied Polymer Science
1981-present Editorial Board, Journal of Biomedical Materials Research
1989-2000 Editorial Board, Journal of Applied Polymer Science
1991-2000 Editorial Board, EPIC Press.
2002-present Editorial Board, Polymer Engineering and Science
2007-present Editorial Board, Polymer
1984-1989 NIH Surgery and Bioengineering Study Section.
1991-1995 NIH Surgery and Bioengineering Study Section.

HONORS and AWARDS

Fellow, American Institute for Medical and Biological Engineering
Fellow, ACS Division of Polymeric Materials: Science and Engineering
1989-90 Arthur Scott Lecturer, Reed College, Portland, Oregon
1998 Best Paper Award, Polyolefins, SPE
1999 Roon Award, Federation of Societies for Coatings Technology
2001 Cooperative Research Award in Polymer Science and Engineering, ACS-PMSE
2004 Outstanding Achievement Award, SPE-TPMF
2005 Mather Spotlight on Scholarship, Case Western Reserve University
2008 ACS Award in Applied Polymer Science

RESEARCH INTERESTS

Structure-property-processing relationships of polymers, blends and composites;
Irreversible deformation, crack propagation and fracture; Microlayer polymer processing;
Gas transport in polymers; Biostability of biomaterials.

BOOKS EDITED

Structure Property Relationships of Polymeric Solids, Plenum Press, 1983.

PUBLICATIONS (submitted)

- 386 Adhesion of Propylene-Ethylene Copolymers to High Density Polyethylene, with Y. Lin, B. C. Poon, G. R. Marchand, and E. Baer, *Polym. Eng. Sci.* (submitted).
- 385 Effect of Tie-Layer Thickness on the Adhesion of Ethylene-Octene Copolymers to Polypropylene, with A. R. Kamdar, R. K. Ayer, B. C. Poon, G. R. Marchand, and E. Baer, *Polymer* (submitted).
- 384 Effect of Chain Blockiness on the Phase Behavior of Ethylene-Octene Copolymer Blends, with A. Kamdar, H. Wang, D. U. Khariwala, A. Taha, and E. Baer, *J. Poly. Sci, Part B: Polym. Phys.* (submitted).
- 383 Deformation of Elastomeric Polyolefin Spherulites, with H. Wang, S. P. Chum, and E. Baer, *J. Polym. Sci, Part B: Polym. Phys.* (submitted).

PUBLICATIONS (in press)

- 382 Comparing Elastomeric Behavior of Block and Random Ethylene-Octene Copolymers, with H. Wang, S. P. Chum, and E. Baer, *J. Appl. Polym. Sci.* (in press).
- 381 Comparison of Olefin Copolymers as Compatibilizers for Polypropylene and High Density Polyethylene, with Y. Lin, V. Yakovleva, H. Chen, and E. Baer, *J. Appl. Polym. Sci.* (in press).
- 380 Incorporation of Lead Phthalocyanine into Periodic Nanolayered Assemblies for Advanced Optical Systems, with S. Armstrong, Z. Zhou, and E. Baer, *J. Appl. Polym. Sci.* (in press).
- 379 Relationship of Polymorphic Crystalline Phase Texture to Strain Recovery and Stiffness of a Propylene-Based Elastomer, with P. Dias, T. Kazmierczak, and E. Baer, *J. Appl. Polym. Sci.* (in press).

PUBLICATIONS

- 378 Indentation of an Oriented Transparent Polyamide, with Y. Yang, G. Thompson, J. Song, and E. Baer, *J. Appl. Polym. Sci.*, 112, 163-172 (2009).
- 377 Confined Crystallization of Polyethylene Oxide in Nanolayer Assemblies, with H. Wang, J. K. Keum, E. Baer, B. Freeman, A. Rozanski, and A. Galeski, *Science*, 323, 757-760 (2009).
- 376 Biaxially Oriented Poly(Propylene-g-maleic Anhydride)/Phosphate Glass Composite Films for High Gas Barrier Applications, with M. Gupta, Y. Lin, T. Deans, A. Crosby, E. Baer, and D. Schiraldi, *Polymer*, 50, 598-604 (2009).
- 375 Effect of an Environmental Stress Cracking Agent on the Mechanism of Fatigue and Creep in Polyethylene, with R. Ayer and E. Baer, *J. Mater. Sci.*, 43, 6238-53 (2008).

- 374 Tunable Polymer Lens, with G. Beadie, M. L. Sandrock, M. J. Wiggins, R. S. Lepkowicz, J. S. Shirk, M. Ponting, Y. Yang, T. Kazmierczak, and E. Baer, *Optics Express*, **16**, 11847-11857 (2008).
- 373 Optical Properties of a Bio-Inspired Gradient Refractive Index Polymer Lens, with G. Beadie, J. S. Shirk, A. Rosenberg, P. A. Lane, E. Fleet, A. R. Kamdar, Y. Jin, M. Ponting, T. Kazmierczak, Y. Yang, and E. Baer, *Optics Express*, **16**, 11540-11547 (2008).
- 372 Dielectric Response of Structured Multilayered Polymer Films Fabricated by Forced Assembly, with M. A. Wolak, M.-J. Pan, A. Wan, J. S. Shirk, M. Mackey, A. Hiltner, E. Baer, and L. Flandin, *Appl. Phys. Lett.*, **92**, 113301-3 (2008).
- 371 Melt-Processed All-Polymer Distributed Bragg Reflector Laser, with K. D. Singer, T. Kazmierczak, J. Lott, H. Song, Y. Wu, J. Andrews, E. Baer and C. Weder, *Optics Express*, **16**, 10358-10363 (2008). Highlighted “Toward Roll-to-Roll Production of Polymer Microresonator Lasers” in *Optics and Photonics News*, December, 2008, p.28.
- 370 High Pressure Crystallization of HDPE Droplets, with R. Masirek, E. Piorkowska, A. Galeski, and E. Baer, *Macromolecules*, **41**, 8086-8094 (2008).
- 369 Ultra-small-angle X-ray Scattering Study of PET/PC Nanolayers Relating to AFM Results, with F. Ania, I. P. Orench, F. J. Baltá Calleja, D. Khariwala, E. Baer, and S. V. Roth, *Macromol. Chem. Phys.*, **209**, 1367-1373 (2008).
- 368 Oxygen and Carbon Dioxide Permeability of EAA/PEO Blends and Microlayers, with V. V. Pethe, H. P. Wang, E. Baer and B. D. Freeman, *J. Appl. Polym. Sci.*, **110**, 1411-1419 (2008).
- 367 Adhesion of Statistical and Blocky Ethylene-Octene Copolymers to Polypropylene, with P. Dias, Y. J. Lin, B. Poon, H. Y. Chen, and E. Baer, *Polymer*, **49**, 2937-2946 (2008).
- 366 Photon Dispersion and Nanomechanical Properties of Periodic 1D Multilayer Films, with W. Cheng, N. Gomopoulos, G. Fytas, T. Gorishnyy, J. Walish, E. L. Thomas, and E. Baer, *Nano Letters*, **8**, 1423-1428 (2008).
- 365 Relationship between Biaxial Orientation and Oxygen Permeability of Polypropylene Film, with Y. J. Lin, P. Dias, H. Y. Chen, and E. Baer, *Polymer*, **49**, 2578-2586 (2008).
- 364 Crystallization Kinetics of Some New Olefinic Block Copolymers, with D. Khariwala, A. Taha, S. P. Chum, and E. Baer, *Polymer*, **49**, 1365-1375 (2008).
- 363 Oxygen Permeability of Biaxially Oriented Polypropylene Films, with Y. J. Lin, P. Dias, H. Y. Chen, S. Chum, and E. Baer, *Polym. Eng. Sci.*, **48**, 642-648 (2008).
- 362 Effect of Chain Architecture on Biaxial Orientation and Oxygen Permeability of Polypropylene Film, with P. Dias, Y. J. Lin, E. Baer, H. Y. Chen, and S. P. Chum, *J. Appl. Polym. Sci.*, **107**, 1730-1736 (2008).
- 361 Polymeric 1D Photonic Crystals by Continuous Coextrusion, with T. Kazmierczak, H. Song, and E. Baer, *Macromol. Rapid Comm.*, **28**, 2210-2216 (1007).
- 360 Biodegradation Mechanisms of Polyurethane Elastomers, with E. M. Christenson and J. M. Anderson, *Corr. Eng. Sci. Technol.*, **42**, 312-323 (2007).

- 359 Surface Roughness and Light Transmission of Biaxially Oriented Polypropylene Films, with Y. Lin, P. Dias, P. S. Chum, and E. Baer, *Polym. Eng. Sci.*, **47**, 1658-1665 (2007).
- 358 A Fatigue-to-Creep Correlation for Application to Environmental Stress Cracking of Polyethylene, with R. Ayyer and E. Baer, *J. Mater. Sci.*, **42**, 7004-7015 (2007).
- 357 Effect of an Organic Dicarboxylic Acid Salt on Fractionated Crystallization of Polypropylene Droplets, with Y. Jin and E. Baer, *J. Appl. Polym. Sci.*, **105**, 3260-3273 (2007).
- 356 Effect of a Sorbitol Nucleating Agent on Fractionated Crystallization of Polypropylene Droplets, with Y. Jin and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **45**, 1788-1797 (2007).
- 355 Fractionated Crystallization of Polypropylene Droplets Produced by Nanolayer Breakup, with Y. Jin and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **45**, 1138-1151 (2007).
- 354 Oxygen Transport Properties of Liquid Crystalline Polyesters Based on 4,4'-Bibenzoic Acid, with Y. S. Hu, H. P. Wang, D. A. Schiraldi, and E. Baer, *J. Appl. Polym. Sci.*, **105**, 30-37 (2007).
- 353 Characterization of Some New Olefinic Block Copolymers, with H. P. Wang, D. U. Khariwala, W. Cheung, S. P. Chum, and E. Baer, *Macromolecules*, **40**, 2852-2862 (2007).
- 352 Deformation-Induced Color Changes in Mechanochromic Polyethylene Blends, with B. R. Crenshaw, M. Burnworth, D. Khariwala, P. T. Mather, R. Simha, and C. Weder, *Macromolecules*, **40**, 2400-2408 (2007).
- 351 Structure and Deformation of a Propylene-Based Elastomer, with B. C. Poon, P. Dias, S. P. Chum, and E. Baer, *J. Appl. Polym. Sci.*, **104**, 489-499 (2007).
- 350 Aggregation of Lead Phthalocyanine in Blends with Polycarbonate, with A. Ranade, E. Baer, J. Shirk and R. Lepkowicz, *J. Appl. Polym. Sci.*, **104**, 464-469 (2007).
- 349 The Solid State Structure of Polycarbonate Blends with Lead Phthalocyanine, with A. Ranade, H. Wang, E. Baer, J. S. Shirk, and R. S. Lepkowicz, *Polymer*, **48**, 624-631 (2007).
- 348 A New Class of Bio-Inspired Lenses with Gradient Refractive Index, with Y. Jin, H. Tai, E. Baer, and J. S. Shirk, *J. Appl. Polym. Sci.*, **103**, 1834-1841 (2007).
- 347 A Structure of Copolymers of Propene and Hexene Isomorphous to Isotactic Poly(1-butene) Form I, with B. Lotz, J. Ruan, A. Thierry, G. C. Alfonso, E. Baer, E. Piorkowska, and A. Galeski, *Macromolecules*, **39**, 5777-5781 (2006).
- 346 Crystallization of a Miscible Propylene/Ethylene Copolymer Blend, with Y. S. Hu, A. R. Kamdar, P. Ansems, S. P. Chum, and E. Baer, *Polymer*, **47**, 6387-6397 (2006).
- 345 Oxygen Transport Properties of Liquid Crystalline Poly(pentamethylene 4,4'-bibenzoate), with Y. S. Hu and E. Baer, *Polymer*, **47**, 4058-4067 (2006).
- 344 Solid State Structure and Oxygen Transport Properties of Copolyesters Based on Smectic Poly(hexamethylene 4,4'-bibenzoate), with Y. S. Hu and E. Baer, *Polymer*, **47**, 2423-2433 (2006).

- 343 Morphology Studies of Multilayered HDPE/PS Systems, with T. E. Bernal-Lara, R. Masirek, E. Baer, E. Piorkowska, and A. Galeski, *J. Appl. Polym. Sci.*, **99**, 597-612 (2006).
- 342 Formation and Transformation of Polypropylene Nanodroplets, with Y. Jin, E. Baer, R. Masirek, E. Piorkowska, and A. Galeski, *J. Polym. Sci. Part B: Polym. Phys.*, **44**, 1795-1803 (2006).
- 341 Enzymatic Degradation of Poly(Ether Urethane) and Poly(Carbonate Urethane) by Cholesterol Esterase, with E. M. Christenson, S. Patel, and J. M. Anderson, *Biomaterials*, **27**, 3920-3926 (2006).
- 340 Antioxidant Inhibition of Poly(Carbonate Urethane) *In Vivo* Biodegradation, with E. M. Christenson and J. M. Anderson, *J. Biomed. Mater. Res.*, **76A**, 480-490 (2006).
- 339 Comparison of Propylene/Ethylene Copolymers Prepared with Different Catalysts, with C. H. Stephens, B. C. Poon, P. Ansems, S. P. Chum, A. Hiltner, and E. Baer, *J. Appl. Polym. Sci.*, **100**, 1651-1658 (2006).
- 338 Miscibility of Propylene/Ethylene Copolymer Blends, with A. R. Kamdar, Y. S. Hu, P. Ansems, S. P. Chum, and E. Baer, *Macromolecules*, **39**, 1496-1506 (2006).
- 337 The Amorphous Phase of Propylene/Ethylene Copolymers Characterized by Positron Annihilation Lifetime Spectroscopy, with H. P. Wang, P. Ansems, S. P. Chum, and E. Baer, *Macromolecules*, **39**, 1488-1495 (2006).
- 336 Improving Transparency of Stretched PET/Polyamide Blends, with V. Prattipati, Y. S. Hu, S. Bandi, S. Mehta, D. A. Schiraldi, and E. Baer, *J. Appl. Polym. Sci.*, **99**, 225-235 (2006).
- 335 Forced Assembly of Polymer Nanolayers Thinner than the Interphase, with R. Y. F. Liu, A. P. Ranade, H. P. Wang, T. E. Bernal-Lara, and E. Baer, *Macromolecules*, **38**, 10721-10727 (2005).
- 334 Relationship between Nanoscale Deformation Processes and Elastic Behavior of Polyurethane Elastomers, with E. M. Christenson, J. M. Anderson, and E. Baer, *Polymer*, **46**, 11744-11754 (2005).
- 333 Improving Oxygen Barrier Properties of PET by Incorporating Isophthalate: II. Effect of Crystallization, with Y. S. Hu and E. Baer, *J. Appl. Polym. Sci.*, **98**, 1629-1642 (2005).
- 332 Conductivity of Polyolefins Filled with High-Structure Carbon Black, with J. Yu, L. Q. Zhang, M. Rogunova, J. Summers, and E. Baer, *J. Appl. Polym. Sci.*, **98**, 1799-1805 (2005).
- 331 Biostability and Macrophage-Mediated Foreign Body Reactions of Silicone-Modified Polyurethanes, with E. M. Christenson, M. Dadsetan, and J. M. Anderson, *J. Biomed. Mater. Res.*, **74A**, 141-155 (2005).
- 330 Nanostructure Development in Multilayered Polymer Systems as Revealed by X-ray Scattering Methods, with F. J. Baltá Calleja, F. Ania, I. P. Orench, E. Baer, T. Bernal, and S. S. Funari, *Prog. Colloid Polym. Sci.*, **130**, 140-148 (2005).

- 329 **Improving Oxygen Barrier Properties of PET by Incorporating Isophthalate: I. Effect of Orientation**, with R. Y. F. Liu, Y. S. Hu, M. R. Hibbs, D. M. Collard, D. A. Schiraldi, and E. Baer, *J. Appl. Polym. Sci.*, **98**, 1615-1628 (2005).
- 328 **Nano and Microlayered Polymers: Structure and Properties**, with T. E. Bernal-Lara, A. Ranade, and E. Baer, in *Mechanical Properties of Polymers Based on Nanostructure and Morphology* (G. H. Michler and F. J. Baltá Calleja, eds.), Taylor & Francis, 2005, pp.629-681.
- 327 **Improving Transparency of Stretched PET/MXD6 Blends by Modifying PET with Isophthalate**, with Y. S. Hu, V. Prattipati, E. Baer, and S. Mehta, *Polymer*, **46**, 5202-5210 (2005).
- 326 **Surface Modification of Poly(ether urethane urea) with Modified Dehydroepiandrosterone for Improved *In Vivo* Biostability**, with E. M. Christenson, M. J. Wiggins, and J. M. Anderson, *J. Biomed. Mater. Res.*, **73A**, 108-115 (2005).
- 325 **Polymer Interphase Materials by Forced Assembly**, with R. Y. F. Liu, T. E. Bernal-Lara, and E. Baer, *Macromolecules*, **38**, 4819-4827 (2005).
- 324 **Effect of Compatibilization on Oxygen-Barrier Properties of PET/MXD6 Blends**, with V. Prattipati, Y. S. Hu, S. Bandi, D. A. Schiraldi, E. Baer, and S. Mehta *J. Appl. Polym. Sci.*, **97**, 1361-1370 (2005).
- 323 **Effect of Water Sorption on Oxygen Barrier Properties of Aromatic Polyamides**, with Y. S. Hu, S. Mehta, D. A. Schiraldi, and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **43**, 1365-1381 (2005).
- 322 **Structure and Thermal Stability of Polyethylene Nanolayers**, with T. E. Bernal-Lara, R. Y. F. Liu, and E. Baer, *Polymer*, **46**, 3043-3055 (2005).
- 321 **Effect of Orientation on the Free Volume and Oxygen Transport of a Polypropylene Copolymer**, with L. S. Somlai, R. Y. F. Liu, L. M. Landoll, and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **43**, 1230-1243 (2005).
- 320 **Improving Gas Barrier of PET by Blending with Aromatic Polyamides**, with Y. S. Hu, V. Prattipati, S. Mehta, D. A. Schiraldi, and E. Baer, *Polymer*, **46**, 2685-2698 (2005).
- 319 **Oxygen Transport as a Solid State Structure Probe for Polymeric Materials: A Review**, with R. F. Y. Liu, Y. S. Hu, and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **43**, 1047-1063 (2005).
- 318 **Structure and Properties of Homogeneous Copolymers of Propylene and 1-Hexene**, with B. Poon, M. Rogunova, S. P. Chum, E. Baer, A. Galeski, and E. Piorkowska, *Macromolecules*, **38**, 1232-1243 (2005).
- 317 **A Widely Tunable Refractive Index in Nanolayered Polymers**, with M. Sandrock, A. S. Shirk, H. Tai, A. Ranada, M. Wiggins, and E. Baer, *Appl. Phys. Lett.*, **84**, 3621-3623 (2004).
- 316 **Surface Chemistry Mediates Adhesive Structure, Cytoskeletal Organization, and Fusion of Macrophages**, with M. Dadsetan, J. A. Jones, and J. M. Anderson, *J. Biomed. Mater. Res.*, **71A**, 439-448 (2004).

- 315 **Micromechanical Processes in PET/PC Multilayered Tapes: High Voltage Electron Microscopy Investigations**, with E. M. Ivan'kova, G. H. Michler, and E. Baer, *Macromol. Mater. Eng.*, **289**, 787-792 (2004).
- 314 **Structure-Property Relationships in Coextruded Foam/Film Microlayers**, with A. P. Ranade, E. Baer, and D. G. Bland, *J. Cell. Plast.*, **40**, 497-507 (2004).
- 313 **Classification of Homogeneous Copolymers of Propylene and 1-Octene Based on Comonomer Content**, with B. Poon, M. Rogunova, S. P. Chum, and E. Baer, *J. Polym. Sci. Part B: Polym. Phys.*, **42**, 4357-4370 (2004).
- 312 **Buckling in Elastomer/Plastic/Elastomer 3-Layer Films**, with Y. Hu and E. Baer, *Polymer Composites*, **25**, 653-661 (2004).
- 311 **Interphase Materials by Forced-Assembly of Glassy Polymers**, with R. Y. F. Liu, T. E. Bernal-Lara, and E. Baer, *Macromolecules*, **37**, 6972-6979 (2004).
- 310 **Structure of Polypropylene Crystallized in Confined Nanolayers**, with Y. Jin, M. Rogunova, E. Baer, R. Nowacki, A. Galeski, and E. Piorkowska, *J. Polym. Sci. B: Polym. Phys.*, **42**, 3380-3396 (2004).
- 309 **Macrophage Behavior on Surface Modified Polyurethanes**, with J. A. Jones, M. Dadsetan, T. O. Collier, M. Ebert, K. S. Stokes, R. S. Ward, and J. M. Anderson, *J. Biomater. Sci. Polym. Edn.*, **15**, 567-584 (2004).
- 308 **Crystallinity and Oxygen Transport Properties of PET Bottle Walls**, with R. Y. F. Liu, Y. S. Hu, D. A. Schiraldi, and E. Baer, *J. Appl. Polym. Sci.*, **94**, 671-677(2004).
- 307 **Design and Application of Photopatternable Nanomaterials**, with R. Tangirala, E. Baer, and C. Weder, *Adv. Funct. Mater.*, **14**, 595-604 (2004).
- 306 **Oxidative Mechanisms of Poly(carbonate urethane) and Poly(ether urethane) Biodegradation: *In Vivo* and *In Vitro* Correlations**, with E. M. Christenson and J. M. Anderson, *J. Biomed. Mater. Res.*, **70A**, 245-255 (2004).
- 305 **Basic Aspects of Microindentation in Multilayered Poly(ethylene terephthalate)/Polycarbonate Films**, with I. P. Orench, F. Ania, E. Baer, T. Bernal, and F. J. Baltá Calleja, *Phil. Mag.*, **84**, 1841-1852 (2004).
- 304 **Quasi-brittle to Ductile Transition in Impact Modified PVC**, with J. Yu, J. W. Summers, and E. Baer, *J. Vinyl Addit. Technol.*, **10**, 11-16 (2004).
- 303 **Stepwise Fatigue Crack Propagation in Poly(vinyl chloride)**, with T. E. Bernal-Lara, Y. Hu, J. W. Summers, and E. Baer, *J. Vinyl Addit. Technol.*, **10**, 5-10 (2004).
- 302 **Poly(carbonate urethane) and Poly(ether urethane) Biodegradation: *In Vivo* Studies**, with E. M Christenson, M. Dadsetan, M. J. Wiggins, J. M. Anderson, *J. Biomed. Mater. Res.*, **69A**, 407-416 (2004).
- 301 **Effect of Impact Modification on Slow Crack Growth in Poly(Vinyl Chloride)**, with T. E. Bernal-Lara, Y. Hu, J. Summers, and E. Baer, *J. Mater. Sci.*, **39**, 2979-2988 (2004).

- 300 *In Vivo* Inflammatory and Wound Healing Effects of Gold Electrode Voltammetry for MEMS Micro-Reservoir Drug Delivery Device, with G. Voskerician, R. S. Shawgo, J. M. Anderson, M. J. Cima, and R. Langer, *IEEE Trans. Biomed. Eng.*, 51, 627-635 (2004).
- 299 Poly(ethylene terephthalate) Modified with Aromatic Bisester Diamides: Thermal and Oxygen Barrier Properties, with M. R. Hibbs, J. Holtzclaw, D. M. Collard, R. Y. F. Liu, E. Baer, and D. A. Schiraldi, *J. Polym. Sci. A: Polym. Chem.*, 42, 1668-1681 (2004).
- 298 Oxygen Barrier Properties of Copolyesters Containing a Mesogenic Group, with Y. Hu, R. Y. F. Liu, D. A. Schiraldi, and E. Baer, *Macromolecules*, 37, 2136-2143 (2004).
- 297 Solid State Structure of Copolyesters Containing a Mesogenic Group, with Y. Hu, R. Y. F. Liu, D. A. Schiraldi, and E. Baer, *Macromolecules*, 37, 2128-2135 (2004).
- 296 Polymers with Palladium Nano-Particles as Active Membrane Materials, with J. Yu, R. Y. F. Liu, B. Poon, S. Nazarenko, T. Koloski, T. Vargo, and E. Baer, *J. Appl. Polym. Sci.*, 92, 749-756 (2004).
- 295 Effect of Soft Segment Chemistry on Polyurethane Biostability During *In Vitro* Fatigue Loading, with M. J. Wiggins, M. MacEwan, and J. M. Anderson, *J. Biomed. Mater. Res.*, 68A, 668-683 (2004).
- 294 Modifying Adhesion of Linear Low Density Polyethylene to Polypropylene by Blending with a Homogeneous Ethylene Copolymer, with B. C. Poon, S. P. Chum, and E. Baer, *J. Appl. Polym. Sci.*, 92, 109-115 (2004).
- 293 Adhesion of Polyethylene Blends to Polypropylene, with B. C. Poon, S. P. Chum, and E. Baer, *Polymer*, 45, 893-903 (2004).
- 292 Free Volume and Oxygen Transport in Cold-Drawn Polyesters, with R. Y. F. Liu and E. Baer, *J. Polym. Sci. B: Polym. Phys.*, 42, 493-504 (2004).
- 291 Probing Nanoscale Polymer Interactions by Forced-Assembly, with R. Y. F. Liu, Y. Jin, and E. Baer, *Macro. Rapid Comm.*, 24, 943-948 (2003).
- 290 *In Vivo* Biocompatibility and Biodegradation of Poly(ethylene carbonate), with M. Dadsetan, E. M. Christenson, F. Unger, M. Ausborn, T. Kissel, and J. M. Anderson, *J. Control. Release*, 93, 259-270 (2003).
- 289 Effect of Strain and Strain Rate on Fatigue-Accelerated Biodegradation of Polyurethane, with M. J. Wiggins and J. M. Anderson, *J. Biomed. Mater. Res.*, 66A, 463-475 (2003).
- 288 Aging of Poly(lactide)/Poly(ethylene glycol) Blends: 1. Poly(lactide) with Low Stereoregularity, with Y. Hu, M. Rogunova, V. Topolkaraev, and E. Baer, *Polymer*, 44, 5701-5710, (2003).
- 287 Aging of Poly(lactide)/Poly(ethylene glycol) Blends: 2. Poly(lactide) with High Stereoregularity, with Y. Hu, Y. S. Hu, V. Topolkaraev, and E. Baer, *Polymer*, 44, 5711-5720 (2003).
- 286 Crystallization and Phase Separation in Blends of High Stereoregular Poly(lactide) with Poly(ethylene glycol), with Y. Hu, Y. S. Hu, V. Topolkaraev, and E. Baer, *Polymer*, 44, 5681-5689 (2003).

- 285 **Characterization of Polyethylene with Partially Random Chlorine Substitution, with C. H. Stephens, H. Yang, M. Islam, S. P. Chum, S. J. Rowan, and E. Baer, J. Polym. Sci. B: Polym. Phys., 41, 2062-2070 (2003).**
- 284 **Biodegradation of Polyurethane under Fatigue Loading, with M. J. Wiggins and J. M. Anderson, J. Biomed. Mater. Res., 65A, 524-535 (2003).**
- 283 **Adhesion of Ethylene-Styrene Copolymers to Polyethylene in Microlayers, with V. Ronesi, Y. W. Cheung, and E. Baer, J. Appl. Polym. Sci., 89, 153-162 (2003).**
- 282 **Oxygen Barrier Properties of PET Copolymers Containing Bis(2-hydroxyethyl)hydroquinone, with G. S. Andrade, D. M. Collard, D. A. Schiraldi, Y. S. Hu, and E. Baer, J. Appl. Polym. Sci., 89, 934-942 (2003).**
- 281 **Structural Model for Oxygen Permeability of a Liquid Crystalline Polymer, with Y. S. Hu, D. A. Schiraldi, and E. Baer, Macromolecules, 36, 3606-3615 (2003).**
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- 26 **Interaction of Water with Poly- α -Amino Acids. II. Relationships Between Counter-Ion and Relaxation Processes, with M. Fenton, Biopolymers, 17, 2309-2318 (1978).**
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- 18 **Structural Hierarchies and Interactions in the Tendon Composite, with E. Baer and B. Friedman, Mekhanika Polimerov, No.4, 693-701 (1976).**
- 17 **Ultrastructure Mechanical Property Relationships in Tendon Collagen - A Highly Ordered Macromolecular Composite, with E. Baer and B. Friedman, Mekhanika Polimerov, No.6, 1051-1060 (1975).**
- 16 **The Potential of Poly- α -Amino Acids as Biomaterials, with J.M. Anderson, D.F. Gibbons, R.L. Martin, and R. Woods, J. Biomed. Mater. Res. Symp., 5, 197-207 (1974).**
- 15 **Mechanical Properties of Polymers at Cryogenic Temperatures: Relationships between Relaxation, Yield and Fracture Processes, with E. Baer, Polymer, 15, 805-813 (1974).**
- 14 **Low Temperature Relaxations in Amorphous Polyolefins, with E. Baer, J.R. Martin, and J.K. Gillham, J. Macromol. Sci.-Phys., B9, 255-266 (1974).**
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- 12 **Dynamic Mechanical Analysis of Poly- α -amino Acids. Models for Collagen, with J.M. Anderson and E. Baer, *J. Macromol. Sci.-Phys.*, **B8**, 431-443 (1973).**
- 11 **Piezoelectric Relaxations in Homopolymers and Copolymers of γ -Benzyl-L-Glutamate and L-Leucine, with E. Fukada, T. Furukawa, E. Baer, and J.M. Anderson, *J. Macromol. Sci.-Phys.*, **B8**, 475-481 (1973).**
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- 9 **Biopolymers as Biomaterials: Mechanical Properties of γ -Benzyl-L-Glutamate-L-Leucine Copolymers, with J.M. Anderson, K. Schodt, and R. Woods, *J. Biomed. Mater. Res. Symp.*, **3**, 25-35 (1972).**
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- 5 **A Comparison of Dynamic Mechanical Relaxation Processes at Cryogenic Temperatures in Polyesters, with E. Baer, *J. Macromol. Sci.-Phys.*, **B6**, 545-558 (1972).**
- 4 **Order and Disorder in Monodisperse Latexes, with I.M. Krieger, in Polymer Colloids, (R.M. Fitch, ed.) Plenum Press, 1971, p.63.**
- 3 **Diffraction of Light by Nonaqueous Ordered Suspensions, with Y.S. Papir and I.M. Krieger, *J. Phys. Chem*, **75**, 1881-1886 (1971).**
- 2 **Diffraction of Light by Ordered Suspensions, with I.M. Krieger, *J. Phys. Chem.*, **73**, 2386-2389 (1969).**
- 1 **The Swelling of Alkylammonium Montmorillonites, with W.H. Slabaugh, *J. Phys. Chem.*, **72**, 4295-4298 (1968).**

PhD ADVISEES

Dias, Peter

“Structure-Property Relationships in Some Novel Polyolefins” May, 2008

Jin, Yi

“Fundamental and Applied Research Enabled by Polymer nanolayer Coextrusion Technology” May, 2007.

Ranade, Aditya

“Structure Property Relationships in Various Layered Polymeric Systems” January, 2007

Hu, Yushan

“Oxygen Transport as a Structure Probe for Heterogeneous Polymeric Systems” August, 2005

Christenson, Elizabeth M.

“Biostability and Biocompatibility of Modified Polyurethane Elastomers” May, 2005

Hu, Jiong

“Structure-Property Relationships in Some Polymeric Composite Systems” May, 2005

Liu, Richard Yufeng

“Oxygen Transport as a Structure Probe for Amorphous Polymeric Systems” May, 2005

Bernal-Lara, Teresa Elizabeth

“Failure Processes in Some Polymers: A. Slow Crack Growth in Poly(vinylchloride) and B. Breakup of Poly(ethylene) Nanolayers” January, 2005.

Stephens, Catherine Honor

“Miscibility, Structure-Property Relationships and Crystallization Kinetics of Ethylene Copolymers” June, 2004

Poon, Benjamin Chunman

“Effect of Microstructure on Physical Properties of Olefin Copolymers” January, 2004

Hu, Yu

“Prediction of Long-Term Properties in Polymeric Systems” August, 2003

Wiggins, Michael John

“Biostability of Polyurethane Elastomers: Pacemaker Leads, Effect of Fatigue, and Novel Antioxidant Stabilizers” May, 2002

Collier, Terry Odell III

“Chemical and Physical Effects on the Adhesion, maturation, and Survival of Monocytes, macrophages, and Foreign Body Giant Cells” May, 2002 (with Prof. J. M. Anderson)

Jarus, David Alan

- “Polyolefin Blends with Immiscible Polymers: Weld Line Strength, Impact Properties, Microlayer Morphology, and Barrier” January 2002**
- Chang, Andy Cheng**
- “High Strain Deformation Behavior of Semicrystalline Polyolefins and Blends” May, 2002**
- Polyakova, Anna**
- “Effect of Formulation Variables on Polymer Properties: I. Deep Draw of the Epoxy Based Coatings; II. Oxygen Barrier of Poly(ethylene terephthalate)” January, 2001**
- Chen, Hongyu**
- “Structure-Property Relationships of Ethylene-Styrene Interpolymers and Their Blends” January, 2001**
- Parsons, Mark Richard**
- “Slow Crack Growth in Fatigue and Creep of Polyethylene Pipe Resins; and Adhesion of Styrenic Triblock Copolymers” August, 1999**
- Schuman, Thomas Leo**
- “Interdiffusion and Solid State Structure of Polyethylene Microlayer Composites” May, 1999**
- Mueller, Chad David**
- “Processing and Post-Processing Issues Related to Polymer Films” August, 1998**
- Ebeling, Thomas Arnold**
- “Delamination Strength of Polymers as Determined by Peeling of Microlayer Composites” May, 1998**
- Schubert, Mark Alan**
- “Effect of Antioxidants and Strain State on Biostability of Polyurethane Elastomers” May, 1996**
- Kao, Weiyuan John**
- “Biomechanisms of Giant Cell Formation and Leukocyte Adhesion on Polyurethanes” May, 1996 (with Prof. J. M. Anderson)**
- Bensason, Selim**
- ”Structure-Property Relationships in Homogeneous Ethylene-Octene Copolymers” August, 1996**
- Tanrattanakul, Varaporn**
- “Toughening Poly(ethylene terephthalate) with Functionalized Triblock Copolymers” May, 1996**
- Minick, Jill Suzanne**
- ”Microstructural Analysis of Polyethylenes and Their Blends and Copolymers”, May, 1995**

Elleithy, Rabeh

”Damage and Fracture in Selected Polymers and Composites” May, 1994

Li, Tao

“Compatibilizing Agents for Blends of Linear Low Density Polyethylene and Polystyrene as Model Systems of the Post-Consumer Plastic Waste Stream” May, 1994

Wu, Yong Kang

“Biostability/Biodegradation of Poly(ether urethane)s“ January, 1994

Cheng, Chih-Min

“Irreversible Deformation Processes in Rubber-Toughened Polycarbonate” May, 1994

Li, Jian Xing

“Ductility and Fracture Mechanisms of Particulate Filled Thermoplastics” May, 1993

Lisy, Fred

“Application of Atomic Force Microscopy to Polymers” May, 1993

Sung, Kung-Liang

“Microdeformation Processes in PC/SAN Microlayer Composites” August, 1993

Zhao, Quinghong

“In Vivo Cell/Polymer Interactions and Polyurethane Biostability” May, 1992 (with Prof. J. M. Anderson)

Snyder, Joseph T. II

“The Effect of Compressive Biaxial Orientation on the Low Temperature Toughness and Pre-Fracture Damage of Polypropylene” August, 1992

Chen, Fuh-Sheng

“Damage and Failure Analysis of Continuous Fiber Reinforced Polymer Composites” August, 1992

Kau, Chia-Chiun

“Mechanical Properties and Deformation Mechanisms of Polyurethane Materials” May, 1991

Lee, Ming-Peng

“Phase Morphology and its Relationship to Fracture of Injection Molded Polycarbonate and ABS Blends” May, 1991

Tse, Albert Sze-Kwong

“Impact Modification of Poly(vinyl chloride) with Chlorinated Polyethylene” May, 1990

Cassidy, James Joseph

“Hierarchical Structure and mechanical Properties of Collagen in the Intervertebral Disc” May, 1990

Weng, Tung-Yao

“Structure-Property Relationships in Some Novel Polymeric Materials” January, 1989

Kim, Yong-Won

“Structure-Property Relationships of some Polymer Blends” May, 1989

Tang, Hsiang-In

“Mechanical Properties and Deformation Mechanisms of Polypropylene Materials”

January, 1988

Ma, Muyuan

“Deformation and Fracture of Polycarbonate and its Multilayer Composites” June, 1988

Chou, Chai-Jing

“Relationships between Hierarchical Structure and Deformation Behavior of Some Polypropylene Materials” May, 1987

Pan, Shue-Jen (Jason)

“Structural Hierarchy and Orientation of Some Unique Polymeric Materials” May, 1987

Wilfong, Debra Lynn

“Toughening Mechanisms in Miscible and Immiscible Blends” May, 1985

Goggins, Jean Ann

“The Relationship between Arterial Thrombosis and Neutralization of a Polyethylene Ionomer” August, 1985 (with Prof. R. D. Jones)

Yuan, Jih-Yih

“Irreversible Deformation Processes in PVC and its Short Glass Fiber Reinforced Composites” August, 1985

Koltisko, Bernard Michael Jr.

“Deformation Mechanisms in Polystyrene Materials” August, 1985

Phua, Seok Kheng

“In Vitro Biodegradation Studies of Biomer” May, 1984

Betsch, David Frank

“The Effect of Water on the mechanical Properties of Tendon Collagen” January, 1982

Chang, Yung-Gee Alice

“Conformational Characterization of Polymer Single Crystal Surfaces” May, 1982

Eguiluz, Miguel

“Chemical Modification of Polyethylene” January, 1980

MS ADVISEES

Pethe, Viswas

**”Oxygen and Carbon Dioxide Permeability of EAA/PEO Blends and Microlayers”
January, 2008**

Prattipati, Vamsi

”Improving Barrier and Transparency of PET-MXD6 Blends” January, 2005

Ronesi, Vickey Marie

“Adhesion of Ethylene-Styrene Copolymers to Polyethylene in Microlayers” January, 2003

Qureshi, Nadim Zulfiqar Ali

“Diffusional Processes as Related to Melt Adhesion and Oxygen Barrier” May, 2000.

Kerns, Julia Anne

**“Effect of Adhesion on Comparison of Irreversible Deformation and Yielding in
Microlayers of PC with PMMA and SAN” January, 2000.**

Sekelik, Douglas John

“Oxygen Barrier Property Enhancement of Poly(ethylene terephthalate)” August, 1998

Shah, Anand Ramanlal

“Fatigue Crack Propagation in Polyethylene Pipe Resin” May, 1997

Ebeling, Thomas Arnold

**“Delamination Failure Mechanisms of a Woven Polyurethane Methacrylate-Glass Fiber
Composite System” May, 1996**

Pribisich, Risto B.

“Chemical Modification of Kraton G for Enhanced Surface Properties” January, 1995

Tonanon, Nattaporn

**“Stabilization of Poly(ether urethane urea) Elastomers Evaluated by Creep Compliance in
an Oxidative Environment” May, 1995**

Azeez, Ahmad

**“Surface Characterization and In Vitro Monocyte Adhesion/Activation on Modified FEP
Copolymer Surfaces” May, 1995 (with Prof. J. M. Anderson)**

Parsons, Mark Richard

**“Blends of PVC/MBS with Small Amounts of PET: Mechanical Properties in Uniaxial
Tension and Damage Zone Development in Triaxial Tension” January, 1994**

Duvall, James H.

**“Effect of Compatibilization on the Properties of Polypropylene/Polyamide 66 Blends”
January, 1994**

Mueller, Chad David

“Cooperative Fiber Microbuckling” May, 1994

Schubert, Mark Alan

“In Vitro Biodegradation of Stressed Poly-Ether-Urethane-Urea Elastomers” May, 1994

Haderski, Denise

“Interdiffusion in Microlayers of Polycarbonate and a Miscible Copolyester” May, 1994

Kao, Weiyuan John

“Interaction of Poly(etherurethane ureas) and Poly(etherurethanes) with Macrophages, Foreign Body Giant Cells, Blood Plasma Proteins In Vivo and In Vitro” May, 1994 (with Prof. J. M. Anderson)

Bensason, Selim

“The Damage Zone in the Blends of Poly(vinyl chloride) with Methyl Methacrylate-Butadiene-Styrene (MBS)” May, 1993

Pollock, George L. III

“Interdiffusion in Microlayered Polymer Composites of Polycarbonate and a Copolyester” May, 1993

Renier, Mike

“Identification of the Extractable Components from Poly(etherurethane urea) Elastomers” August, 1992

Knouff, Brian Joseph

Failure Analysis of Graphite Fiber/Fluorene Epoxy Laminates” January, 1990

Regola, Michael Steven

“Prefailure Damage Processes in Highly Filled Glass/Mica/Epoxy Composites” August, 1990

Carroll, William John

“Acoustic Emission from Carbon Fiber-Epoxy Composites” January, 1989

Li, Tao

“Impact Modification of Short Glass fiber Reinforced Poly(vinyl chloride)” August, 1989

Faudree, Michael Christopher

“Analysis of Damage Processes in Reinforced Polyester Thermosets” January, 1987

Zhao, Quinghong

“Long Term In Vitro Enzymic Biodegradation Studies of Polyetherurethane Elastomers for Cardiovascular Applications” January, 1987

Gregory, Brian

“Deformation Mechanisms of PC/SAN Microlayer Composites” January, 1986

Weng, Tung-Yao

“Hierarchical Structure and Mechanical Properties of a Thermotropic Liquid Crystalline Copolyester” May, 1984

Wilfong, Debra Lynn

“The Calorimetric Properties of the Water Associated with Connective Tissue Polysaccharides” January, 1982

Marchant, Roger Eric

“In Vivo Biodegradation of Polymers” May, 1982 (with Prof. J. M. Anderson)

Niven, Harvey Paul

“Organization of Normal and Chemically-Altered Collagen Fibers” May, 1982

Hawrylko, Roman B.

“The Physical and Mechanical Properties of a Poly(amino acid) Hydrogel” August, 1983

Wilson, John Vance

“A Chemical Probe for the Amorphous Regions of Polyethylene” May 1982

Orberg, Jan Willem

“Ultrastructure of Collagen Fibers in Intestine” May, 1982

Tseng, Jun-Hua

“Strain-Enhanced Environmental Degradation of Thermoplastic Elastomers” May, 1981

Arroyo, Nestor A.

“Suspension Bromination of High Density Polyethylene” August, 1977

Fenton, Mark David

“The Influence of Water on Physical Properties of Polypeptides” August, 1977