

## Miko ÇAKMAK

### REFEREED PUBLICATIONS

130. " **Evolution of Structural Hierarchy in Injection Molded Semicrystalline Polymers**" M. Çakmak, B. Yalçın, in " Injection Molding, Technology and Fundamentals" Eds M.R. Kamal, A. Isayev and S. Liu , Hanser Publications ( 2009)
129. " **A novel macroencapsulating immunoisulatory device: the preparation and properties of nanomat-reinforced amphiphilic co-networks deposited on perforated metal scaffold**"  
G. Erdodi , J.Kang , B. Yalçın ,M. Çakmak K. S. Rosenthal ,  
S. Grundfest-Broniatowski , Joseph P. Kennedy  
Biomed Microdevices (2009) 11:297–312
128. " **A multi-stream flow technique to obtain isotropic texture in extruded thermotropic liquid crystalline polymer melts**"  
Boles, D.; Çakmak, M.; Yalçın, B.  
Polym. Eng. and Sci. (2009), 49(1), 73-80.
127. " **Influence of biaxial stretching mode on the crystalline texture in polylactic acid films**". Ou, X.; Çakmak, M.  
Polymer (2008), 49(24), 5344-5352
126. **Nanoparticle-Induced Radial Structural Gradients in Melt-Spun Polypropylene/PPgMA Fibers.** Fujiyama-Novak, J. H.; Çakmak, M..Macromolecules (2008), 41(17), 6444-6452.
125. " **A novel microstream injection molding method for thermotropic liquid crystalline polymers to promote mechanical isotropy: A matrixing microbeam X-ray study**". Boles, D.; Çakmak, M.; Yalçın, B.  
Polymer (2008), 49(16), 3541-3553
124. " **Molecular origins of toughening mechanism in uniaxially stretched nylon 6 films with clay nanoparticles.** Yalçın, B.; Ergungor, Z.; Konishi, Y.; Çakmak, M.; Batur, C. Polymer (2008), 49(6), 1635-1650.
123. " **Dynamic phase diagram derived from large deformation non-linear mechano-optical behavior of polyethylene naphthalate nanocomposites**" K. Kanuga, M. Çakmak\*,Polymer (2007) **48** ,7176-7192

122. **Stress-strain behavior as related to surface topography and thickness uniformity in uni- and biaxially stretched PVDF/PMMA blends**  
Xixian Zhou, M. Cakmak, Polym. Eng. Sci, (2007) **47**, 2110
121. **“Phase Behavior of Rapidly Quenched PVDF/PMMA Blends as Characterized by Raman Spectroscopy, X-Ray Diffraction and Thermal Techniques”**. Zhou, Xixian; Cakmak, M..  
Journal of Macromol. Sci. Part B: Phys. (2007), 46(4), 667-682
120. **“Control of the strain-induced crystallization of polyethylene terephthalate by temporally varying deformation rates: A mechano-optical study”**. |  
Martins, Carla I.; Cakmak, M.. Polymer (2007), 48(7), 2109-2123
119. **“Control of optical anisotropy at large deformations in PMMA/chlorinated-PHB (PHB-Cl) blends: Mechano-optical behavior”**  
Yalcin, B.; Cakmak, M.; Arin A.H.; Hazer, B.; Erman, B.  
Polymer , (2006) 47, 8183 ( 2006)
118. **“ Influence of composition and annealing on the structure development in biaxially stretched PEN/PEI/PEEK ternary blends”**  
Zhou, Xixian; Cakmak, M.,  
Polymer, (2006) **47**(18), 6362-6378
117. **“ Role of Relaxation on Strain Crystallization of Uniaxially Stretched Poly(ethylene naphthalate) Films: A Mechano-optical Study”**  
Martins, C.; Cakmak, M.. .  
Macromolecules (2006), **39**(14), 4824-4833.
116. **“Nanoparticle induced network self-assembly in polymer-carbon black composites.”** Konishi, Y.; Cakmak, M..  
Polymer (2006), 47(15), 5371-5391
115. **“The influence of molten fraction on the uniaxial deformation behavior of polypropylene: real time mechano- optical and atomic force microscopy observations”**.  
Koike, Yutaka; Cakmak, Miko.  
J. of Polym. Sci., Polym. Phys. (2006), 44(6), 925-941
- 114.. **“Influence of nanosilica particles on hysteresis and strain induced crystallization of natural rubber as investigated by a real time true stress-true strain**

**birefringence system”** Fiorentini, F.; Cakmak, M.; Mowdood, S. K  
Rubber Chemistry and Technology (2006), 79(1), 55-71.

113. **“Real Time Development of Structure in Partially Molten State Stretching of Polypropylene As Detected by Spectral Birefringence Technique:Effect of Isotacticity”**  
Yutaka Koike And Miko Cakmak  
Journal of Macromol. Sci., Physics, 45:13–37, 2006
112. **Nonlinear Mechanooptical Behavior of Poly(ethylene naphthalate)/Poly(ether imide) Blends. Dynamic Phase Behavior.** Kanuga, K.; Cakmak, M..  
Macromolecules (2005), 38(23), 9698-9710.
111. **“Long Time Evolution Of Structural Hierarchy In Uniaxially Stretched And Retracted Crosslinked Natural Rubber”**  
D. Valladares, B. Yalcin and M. Cakmak\* ,  
Macromolecules (2005), 38(22), 9229-9242.
110. **“Structural hierarchy developed in injection molding of nylon 6/ clay/ carbon black nanocomposites”.**  
Konishi, Yuma; Cakmak, Miko.  
Polymer (2005), 46(13), 4811-4826
109. **“ Role of molten fraction on the structural evolution in stretching and cooling of crosslinked low-density polyethylene: Real-time mechano-optical measurements.**  
Koike, Yutaka; Cakmak, Miko  
.Journal of Polym. Sci., Part B: Polymer Phys.  
(2005), 43(14), 1825-1841.
- 108.. **Large Deformation Mechano-Optical and Dynamical Phase Behavior in Uniaxially Stretched Poly(ethylene naphthalate).**  
Martins, C. I.; Cakmak, M.  
Macromolecules (2005), 38(10), 4260-4273.
107. **The effect of copolymer composition on the spatial structural hierarchy developed in injection molded bacterial poly(3-hydroxybutyrate-co-3-hydroxyvalerate) parts.**  
Cakmak, M.; Ghanem, M.; Yamamoto, T.  
Polymer (2005), 46(10), 3425-3439.
106. **Molecular orientation behavior of poly(vinyl chloride) as influenced by the nanoparticles and plasticizer during uniaxial film stretching in the rubbery stage** Baris Yalcin, Miko Cakmak Journal of Polymer Science Part

B: Polymer Physics , (2005) 43, No.6,724- 742

105. **“Nonlinear Mechanooptical Behavior of Uniaxially Stretched Poly(lactic acid): Dynamic Phase Behavior”**. Mulligan, Jake; Cakmak, Miko. *Macromolecules* (2005), 38(6), 2333-2344.
104. **“The suppression of strain induced crystallization in PET through sub micron TiO<sub>2</sub> particle incorporation.**” Taniguchi, Atsushi; Cakmak, Miko. *Polymer* (2004), 45(19), 6647-6654
103. **“Effect of Chemical Composition on Large Deformation Mechanooptical Properties of High Strength Thermoplastic Poly(urethane urea)s”**. Curgul, Sezen; Yilgor, Iskender; Yilgor, Emel; Erman, Burak; Cakmak, Miko. *Macromolecules* (2004), 37(23), 8676-8685
102. **“Atomic Force Microscopy Observations on the Structure Development during Uniaxial Stretching of PP from Partially Molten State: Effect of Isotacticity.”** Koike, Yutaka; Cakmak, Miko. *Macromolecules* (2004), 37(6), 2171-2181
101. **“On line measurement of crystallinity of Nylon 6 nanocomposites by laser Raman spectroscopy and neural networks”**. Ergungor, Z.; Batur, C.; Cakmak, M. *Journal of App. Polym. Sci.* (2004), 92(1), 474-483
100. **“Superstructural hierarchy developed in coupled high shear/high thermal gradient conditions of injection molding in nylon 6 nanocomposites.”** Yalcin, B.; Cakmak, M. *Polymer* (2004), 45(8), 2691-2710
99. **“The Role Of Plasticizer On The Exfoliation And Dispersion And Fracture Behavior Of Clay Particles In Pvc Matrix: A Comprehensive Morphological Study”** B. Yalcin, M. Cakmak. *Polymer* 2004; **45**(19): 6629-6644
98. **“Atomic force microscopy observations of the structural development during the uniaxial stretching of crosslinked low-density polyethylene in partial and fully molten states”**. Koike, Yutaka; Cakmak, Miko *Journal of Polym. Sci. Polymer Physics* (2004), 42(12), 2228-2237
97. **“Kinetic studies of polyurethane polymerization with Raman spectroscopy”**. Parnell, Shane; Min, K.; Cakmak, M. *Polymer* (2003), 44(18), 5137-5144.

96. **“Morphological development of reactive blends of poly (vinyl chloride) and polyurethane.”** Baena, Johanna; Parnell, Shane; Min, Kyonsuku; Cakmak, Mukerrem.  
Polymeric Materials Science and Engineering (2003), 89 778-779
- 95 ” **Real time development of structure in partially molten state stretching of PP as detected by spectral birefringence technique**”Yutaka Koike and Miko Cakmak ,Polymer **44**( 15) , 4249-4260 (2003)
- 94 .. **“Amplification effect of platelet type nanoparticles on the orientation behavior of injection molded nylon 6 composites.** Yalcin, B.; Valladares, D.; Cakmak, M Polymer (2003), 44(22), 6913-6925
93. **Initiation and development of the heat-affected zone in the vibration welding of polyvinylidene fluoride and its copolymers.**  
Valladares, D.; Cakmak M.  
Journal of Applied Polymer Science (2002), 86(13), 3377-3388
- 92 ” **Effect of processing conditions on the development of morphology in clay nanoparticle filled Nylon 6 fibers”** Ergungor, Zeynep; Cakmak, Miko; Batur, Celal. Macromolecular Symposia (2002), 185(Flow-Induced Crystallization of Polymers), 259-276
- 91 **The effect of natural rubber crosslink density on real time birefringence, true stress and true strain behavior.** Valladares, D.; Toki, S.; Sen, T. Z.; Yalcin, B.; Cakmak, M.. Macromolecular Symposia (2002), 185(Flow-Induced Crystallization of Polymers), 149-166
90. **“Evolution of phase behavior and orientation in uniaxially deformed polylactic acid films”.** Kokturk, G.; Serhatkulu, T. F.; Cakmak, M.; Piskin, E. Polymer Engineering and Science (2002), 42(8), 1619-1628
- 89 **“ Basic studies on development of structure hierarchy in tubular film blown dynamically vulcanized PP/EPDM blend.** Wang, M. D.; Cakmak, M. Rubber Chem. and Tech. (2001), **74(5)**, 761-778.
- 88 **“ Influence of processing history and composition on the basic structure and biaxial deformation behavior in dynamically vulcanized PP/EPDM blends.** Wang, M. D.; Cakmak, M.  
Rubber Chem. and Tech. (2001), **74(5)**, 745-76
- 87 **“Kinetics of rapid structural changes during heat setting of preoriented PEEK/PEI blend films as followed by spectral birefringence technique.** Bicakci, S.; Cakmak, M.. Polymer (2002), 43(9), 2737-2746

- 86 **“Development of structural hierarchy during uniaxial drawing of PEEK/PEI blends from amorphous precursors.”** Bicakci, S.; Cakmak, M..  
Polymer (2001) **43(1)**, 149-157
- 85 **“Free radical crosslinking of unsaturated bacterial polyesters obtained from soybean oily acids “.** Hazer, Baki; Demirel, Songun I.; Borcakli, Mehlika; Eroglu, Mehmet S.; Cakmak, Miko; Erman, Burak. Polymer Bulletin (Berlin, Germany) (2001), 46(5), 389-394
- 84 **“Online monitoring of birefringence development in heat-setting polymer films with a fast dual-wavelength optical technique. II. Uniaxially oriented PEN/PEI films.** Galay, J.; Cakmak, M.. Journal of Polym. Sci.. Polymer Physics (2001), **39(11)**, 1147-1159
- 83 **“Online monitoring of birefringence development in heat-setting polymer films with a fast dual-wavelength optical technique. I. Uniaxially oriented poly(ethylene naphthalate).”** Galay, J.; Cakmak, M.. Journal of Polym. Sci Polym.Phys. (2001), 39(11), 1107-1121
- 82 **“ Kinetics of structural evolution during crystallization of preoriented PET as followed by dual wavelength photometric birefringence technique.** Venkatesvaran, H.; Cakmak, M..  
Polym. Eng. and Sci. (2001), 41(2), 341-357
- 81 **“Spatial variation of structural hierarchy in injection molded PVDF and blends of PVDF with PMMA. Part II. Application of microbeam WAXS pole figure and SAXS techniques. “** Wang, Y. D.; Cakmak, M..  
Polymer (2001), 42(9), 4233-4251.
- 80 **“Development of structural hierarchy in injection-molded PVDF and PVDF/PMMA blends Part III. Spatial variation of superstructure as detected by small-angle light scattering”.**  
Wang, Y. D.; Cakmak, M.Polymer (2001), 42(8), 3731-3743
- 79 **“Real-time monitoring of fast birefringence changes during crystallization of preoriented poly(ethylene terephthalate) and poly(lactic acid) films”.** Cakmak, M.; Serhatkulu, T. F.; Kokturk, G.  
NATO Science Series, Series E: Applied Sciences (2000), 370  
(Structure Development during Polymer Processing), 221-233
- 78 **“The effect of composition and processing conditions on the structure development in injection molded dynamically vulcanized PP/EPDM blends”.** Cakmak, M.; Cronin, S. W.  
Rubber Chem. and Tech. (2000), 73(4), 753-778
77. **On line Crystallinity measurement using Laser Raman Spectrometer and Neural Network”,** C. Batur\*/, M. Vhora, M. Cakmak, T. Serhatkulu

ISA Transactions, **38**,139-148(1999)

76. **Structural hierarchy developed in Co-injection molded Polystyrene/polypropylene parts** M. Kadota, M. Cakmak\*, H. Hamada ,  
Polymer 40,3119(1999)
- 75 “**Growth Habits and Kinetics of Crystallization of Poly ethylene naphthalate under isothermal and Nonisothermal Conditions**”  
S.W. Lee and M. Cakmak,  
J. Macromol. Sci. Phys. **B37 (4)**,501(1998)
- 74 “**Phase behavior of ternary blends of poly(ethylene naphthalate), poly(ether imide) and poly(ether ether ketone)**”  
S. Bicakci and M. Cakmak , Polymer (1998), 39(17), 4001-4010.)
73. **Uniaxial deformation behavior of ternary blends of poly(ethylene naphthalate), poly(ether imide) and poly(ether ether ketone) films**  
S. Bicakci and M. Cakmak , Polymer 39,5405(1998)
72. **Crystal structures and morphology of thin-film, melt-crystallized, and polymerized poly(ethylene naphthalate)**  
Liu J, Sidoti G, Hommema JA, Geil PH, Kim JC, Cakmak M  
Journal Of Macromol. Sci,-Phys B37: (4) 567-586 1998  
(Special edition honoring Prof. H.G. Zachmann)
71. **Structure development and dynamics of vibration welding of poly ethylene naphthalate from amorphous and semicrystalline precursors,**  
M. Cakmak\* and J. Robinette and S. Schaible ,  
J. Appl. Polym. Sci. **70**,89-108(1998))
- 70 . **Effect of composition on orientation, Optical and Mechanical properties of bi-axially drawn pen and pen/pei blend films**  
J. C. Kim ,M. Cakmak\*,X. Zhou, Polymer **39**,4225(1998)
69. “**Hierarchical Structure Gradients Developed in Injection Molded PVDF and PVDF/PMMA Blends: I. Optical and Thermal Analysis**”  
Y.D. Wang and M. Cakmak J. Appl. Polym. Sci.**68**,909(1998)
68. “**Structural analysis of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) fibers prepared by drawing and annealing processes**  
Y Furuhashi, H Ito, T Kikutani, T Yamamoto, M Kimizu, M Cakmak  
Journal Of Poly. Sci. Part B- Phys. **36**: (14) 2471-2482 (1998)

67. **“Effect Of Drawing Condition On The Structure And Properties Of Bacterial Poly(3-Hydroxybutyrate-Co-3-Hydroxyvalerate)Fibers”**  
Takashi Yamamoto, Mitsugu Kimizu , Takeshi Kikutani and M. Cakmak  
Int. Polym. Proc. **12**,29(1997)
66. **“ Structure Development in High Speed Spinning of Polyethylene Naphthalate (PEN) Fibers .** M. Cakmak, J.C. Kim ,  
J. Appl. Polym. Sci 739, **61** (1997)
65. **“ Texture of Injection Molded Poly ethylene 2,6 naphthalene dicarboxylate) parts”,** Y. Ulcer and M. Cakmak , Polymer 2907,**38** (1997)
64. **“Structure Development in Injection Molding of Crystalline polymers”**  
Book Chapter , M. Cakmak, C.M. Hsiung, Y.D. Wang in “Tekisutoshiriizu, purasutikku seikeikakou-gaku III Seikeikakou ni okeru purasutikku zairyo” (Textbook Series on Processing of Plastics III Plastic Materials in Polymer Processing) Dr. Kenji Takemura, Kiyohito Koyama Takeshi Kikutani (Tokyo Institute of Technology) editors. Publisher SHIGUMA SYUPPAN ( November 1997)
63. **“Necking mechanism and its elimination in uniaxially drawn films of poly(ethylene naphthalate) (PEN)/polyetherimide (PEI) blends “**  
Cakmak M, Kim JC,  
Journal Of Applied Polymer Science 65: (11) 2059-2074 (1997)
- 62 **“ Polyaryl ether ketones: Properties and Structure Development”**  
M. Cakmak Chapter in “ Handbook of Thermoplastics”  
Ed. By O. Olabisi, Marcel Decker ( NY) (1996)
61. **“The Effect Of Annealing On The Structure Of Injection Molded Poly ethylene naphthalate “**  
Y. Ulcer and M. Cakmak, J. Appl. Polym. Sci.1661 ,62 (1996)
- 60 **“Structural Gradients Developed In Injection Molded Syndiotactic Polystyrene ( SPS)”** Y. Ulcer, M. Cakmak, C. Miao, C.M. Hsiung  
J. Appl. Poly. Sci. **60**, 669 (1996)
59. **“ A structure oriented model to simulate the shear induced crystallization in injection molding polymers : a lagrangian approach”,** C. M. Hsiung, M. Cakmak and Y. Ulcer, Polymer **37**,4555(1996)
58. **“ Processing Characteristics and Structure Development in Solid State Extrusion of Bacterial Copolyesters: Poly (3hydrozybutyrate co-hydroxyvalerate”** Y.D. Wang, T. Yamamoto M. Cakmak  
J. Appl. Polym. Sci. 61, 1957(1996)
57. **Effect of Processing Conditions on the Structure Development in the Welding Region of Injection Molded Poly aryl ether Ketone” III.**

- Y. Ulcer , M. Cakmak and C.M. Hsiung  
J. Appl. Polym Sci.**55**,1241(1995)
56. **“A Study on the Structural Changes During Uniaxial Drawing and Annealing of Poly (ethylene naphthalate) PEN films.**  
with S. Murakami, Y. Nishikawa, M. Tsuji, A. Kawaguchi, S. Kohjiya and M. Cakmak , Polymer **36**, No.2, 2291 (1995)
55. **“ Molecular Mechanism of Neck Formation in Uniaxially Stretched Polyethylene Naphthalate Films**  
” M. Cakmak and S. W Lee ,  
Polymer **36**,4039(1995)
54. **“Dynamics of Uni and Biaxial Deformation and Its effects on the thickness Uniformity and Surface Roughness of Poly ether ether ketone films”**  
M. Simhambhatla and M. Cakmak  
Polym. Eng. Sci. **35**, 1562(1995)
53. **“ Processing Characteristics and Structure Development in Solid State Extrusion of a New Semicrystalline Polyimide (BTDA-DMDA)**  
Y.D. Wang, M. Cakmak and F. Harris  
J. Appl. Polym. Sci. **56**,837(1995)
52. **“Hierarchical structural gradients in injection molded Poly(ethylene 2,6 naphthalene-dicarboxylate) Parts**  
Y. Ulcer and M. Cakmak  
Polymer **35**,5651(1994)
51. **“ Dynamics and Structure Development in Spin Welding of Polyvinylidene Fluoride Cylindrical Rods”**  
S. Schaible and M. Cakmak  
International Polym. Proc. **10**,270 (1995)
50. **"Melt Spinning Effects on Optical and Mechanical Properties of Poly(aryl Sulfone)** F. Yilmaz and M. Cakmak  
Int. Polym. Proc. **9**,141, (1994)
49. **“ Influence of Processing Conditions on Structure and Properties of Biaxially Stretched Engineering Thermoplastics with emphasis on PET”**  
M. Cakmak, a book chapter in “Film Processing” ed. by T. Kanai and C.A . Campbell, Prog. in Polym. Proc. Series vol 8 , Hanser Publishers ( 2000)
48. **" On-line Small Angle and Wide Angle X-ray Scattering Studies on Melt Spinning Polyvinylidene Fluoride Fibers Using Synchrotron Radiation"**  
M. Cakmak, A. Teitge, H.G. Zachmann and J.L. White,  
J. Polym. Sci. Phys. **31**.371 (1993)
47. **“ Solid State Extrusion of VF2/VF3 Copolymers. I. Dynamics of Solid State**

**Extrusion”**

S.S. Lee and M. Cakmak  
Polym. Eng. Sci. **33**,1559(1993)

46. **“Solid State Extrusion of Copolymers II. Structure Development”**  
J.S. Lee and M. Cakmak,  
Polym. Eng. Sci. **33**,1570(1993)
- 45.” **Effect of Processing Conditions on the Structural Gradients Developed in Injection Molded Poly aryl ether ketone parts. I. Characterization by Micro Beam X-ray diffraction technique.**  
C.M. Hsiung and M. Cakmak  
J. Appl. Polym. Sci. **47**,125 (1993)
44. **“Effect of Processing Conditions on the Crystallinity , Orientation gradients and Mechanical properties of Injection Molded Poly aryl ether ketone Parts. II. Large Dumbbell Parts.**  
C.M. Hsiung and M. Cakmak  
J. Appl. Polym. Sci. **47**,149 (1993)
43. **“ Detailed Investigations of Structural Layering Phenomena in Injection Molded Thermotropic Liquid Crystalline Polymers- Part I: Characterization by Image Analysis Techniques”**  
C.M. Hsiung and J. Tian and M. Cakmak  
Int. Polym. Proc. **8**,164,1993
42. **“ Detailed Investigations of Structural Layering Phenomena in Injection Molded Thermotropic Liquid Crystalline Polymers- Part II. Characterization by Micro-Beam X-ray Diffraction Techniques”**  
C.M. Hsiung and M. Cakmak, Int.. Polym. Proc. **8**,255 (1993)
- 41.”**Effect of Biaxial Stretching on Mechanical Properties and Surface Roughness of Poly Methyl Methacrylate (PMMA) Films”**,  
Y.D. Wang and M. Cakmak, Int. Polym. Proc. **8**,143, (1993)
40. **“ Characteristics and Flow Behavior of Molten tin-polypropylene Blend Systems”**  
B. Kalvani and J.L. White and M. Cakmak  
Coll. Polym. Sci. **270**, 738 (1992)
39. **“Influence Of Composition And Processing History On The Cellular Morphology Of The Foamed Olefinic Thermoplastic Elastomers**  
M. Cakmak and A. Dutta, Rubber Chem. & Technol. **65**,932 (1992)
38. **“Foamed Polymer Blends”**  
M. Cakmak and A. Dutta,  
U.S. Patent 5,114,987 (May 19,1992)

37. " **Foaming of Vulcanized PP/EPDM blends using Chemical Blowing Agents**"  
A. Dutta and M. Cakmak  
Rubber Chem. & Tech. **65**,778(1992)
36. "**On-line deformation behavior , optical properties and orientation development in uniaxially stretched syndiotactic polystyrene from amorphous precursors**"  
C.M. Hsiung and M. Cakmak,  
Int. Polym. Proc. **7**,51 (1992)
- 35."**Effect of Biaxial Stretching on the Thickness Uniformity and Surface Roughness of Polyethylene Terephthalate (PET) and Poly-p-Phenylene Sulfide Films**",  
K. Iwakura,Y.D. Wang and M. Cakmak, Int. Polym. Proc. **7**,289(1992)
- 34."**Orientation Development in Melt Spinning Glassy Aromatic Polycondensates, Poly ether imide (PEI), and Polyarylate (PA)**",  
S.S. Song, J.L. White and M. Cakmak, Int. Polym. Proc., **6**,332 (1991)
- 33."**Friction Welding Apparatus**"  
M. Cakmak and K. Keuchel, U.S. Patent No. 4.998,663 March 12, 1991
32. " **Computer Simulations of Crystallinity Gradients Developed in Injection Molding of Slowly Crystallizing Polymers**" C.M. Hsiung and M. Cakmak,  
Polym. Eng. Sci., **31**, No.19, 1372 (1991)
31. " **Orientation and Mechanical Property Development in the Melt Spinning of Fibers from Poly ether imide and Polyarylate**"  
S.S. Song and J. L. White and M. Cakmak  
Int. Polym. Proc. **6**, 332 (1991)
- 30."**Effect of Melt Spinning and Cold Drawing on Structure and Properties of Poly Aryl Ether Ketone (PAEK) Fibers**",  
C.M. Hsiung and M. Cakmak, Polym. Eng. Sci. **31**(3),172 (1991)
- 29."**Thermoforming of Advanced Thermoplastic Composites I: Single Curvature Parts**",  
A. Dutta, M. Niemeyer and M. Cakmak, Polymer Composites **12**, 257 (1991)
- 28."**Instrumented Thermoforming of Advanced Thermoplastic Composites II: Dynamics of Double Curvature Part Formation and Structure Development from PEEK/Carbon Fiber Prepreg Tapes**",  
M. Cakmak A. Dutta, Polymer Composites, **12**, 338 (1991)
- 27."**Instrumented Thermoforming of Advanced Thermoplastic Composites III: Relative Performance of Various Prepregs in Forming Double Curvature Parts**",  
A. Dutta and M. Cakmak, Polymer Composites, **12**, 354 (1991)
- 26."**Structural Gradients in Injection Molded Poly-p- Phenylene Sulfide: Influence of Processing Conditions and Effect on Mechanical Behavior**",  
C.M. Hsiung, M. Cakmak and J.L. White, Int. Polym. Proc., **5**, 109 (1990)

25. **"A Basic Study of Single and Double Bubble Tubular Film Extrusion of Polyethylene Terephthalate"**,  
H.J. Kang, J.L. White and M. Cakmak, Int. Polym. Proc., 5, 62 (1990)
24. **"The Effect of Biaxial Orientation and Crystallinity on the Long Term Creep Behavior of Poly(ethylene Terephthalate) Films Below Glass Transition Temperature"**,  
Y.D. Wang and M. Cakmak, J. Appl. Polym. Sci., 41, 1867(1990)
23. **"Processing Characteristics and Structure Development in Uni and Biaxially Stretched Poly Ethylene 2,6 Naphthalate (PEN) Films"**,  
Y.D. Wang, M. Simhambhatla and M. Cakmak,  
Polym. Eng. Sci., 30, 721 (1990)
22. **"Crystallization Kinetics and Nucleating Agents for Enhancing the Crystallization of Poly-p- Phenylene Sulfide"**,  
S.S. Song, J.L. White and M. Cakmak  
Polym. Eng. Sci., 30, 944 (1990)
21. **"Crystallization Phenomena in the Injection Molding of PEEK and Its Influence on Mechanical Properties"**,  
C.M. Hsiung, M. Cakmak and J.L. White, Polym. Eng. Sci., 30,967 (1990)
20. **"Structure Development in the Melt Spinning and Drawing of Poly-p- Phenylene Sulfide Filaments"**,  
S.S. Song, J.L. White and M. Cakmak, Int. Polym. Proc., 4, 96 (1989)
19. **"Intrinsic Birefringence of  $\alpha$ ,  $\beta$ , and  $\gamma$  Phases of Polyvinylidene Fluoride"**,  
M. Cakmak and Y.M. Wang, J. Appl. Polym. Sci., 37, 977 (1989)
18. **"Characterization of Crystallinity, Orientation, and Mechanical Properties in Biaxially Stretched Poly-p-Phenylene Sulfide Films"**,  
E.I. Maemura, M. Cakmak and J.L. White, Polym. Eng. Sci., 29, 140 (1989)
17. **"Intrinsic Birefringence of Poly Ether Ether Ketone"**,  
M. Cakmak, J. Polym. Sci. Lett., 27, 119 (1989)
16. **"Structure Development in the Melt Spinning and Drawing Poly Ether Ether Ketone Fibers"**,  
S.S. Song, J.L. White and M. Cakmak, Sen-i Gakkaishi, 45(6), 242 (1989)
15. **"Fabrication and Characterization of Orientation in Skew Stretched PET Films"**,  
J. Wu, J.L. White and M. Cakmak, Colloid Polym. Sci., 267, 881 (1989)
14. **"Optical Properties of Simultaneous Biaxially Stretched Polyethylene Terephthalate Films"**,  
M. Cakmak J.L. White and J.E. Spruiell, Polym. Eng. Sci., 29, 1534 (1989)

13. **"Characterization of Crystallinity and Orientation in Poly-p-Phenylene Sulfide"**,  
E.I. Maemura, M. Cakmak and J.L. White, *Int. Polym. Proc.*, 3, 79 (1988)
12. **"Orientation, Crystallization, and Haze Development in Tubular Film Extrusion"**,  
J.L. White and M. Cakmak, *Adv. Polym. Technol.*, 8, 27 (1988)
11. **"Wide Angle X-Ray Line Profile Analysis of Post- Neck Drawn Filaments of High Density Polyethylene"**  
M.Cakmak, E.S. Clark and J.E. Spruiell, *Int. Poly. Proc.*, 3, 91 (1988)
10. **"Orientation"**, J.L. White and M. Cakmak,  
*Encyclopedia of Polymer Science and Eng.*, 10, 595 (1987)
9. **"Small angle and Wide Angle X-Ray Pole Figure Studies on Simultaneous Biaxially Stretched Polyethylene Terephthalate Films"**,  
M. Cakmak J.E. Spruiell, J.L. White and J.S. Lin,  
*Polym. Eng. Sci.*, 27, 893 (1987)
8. **"Second Moment Specification of Complex States of Polymer Chain Orientation in Fabricated Plastics Parts"**,  
J.L. White and M. Cakmak, *Int. Polym. Proc.*, 2, 48 (1987)
7. **"Orientation Processes"**,  
J.L. White and M. Cakmak,  
*Encyclopedia of Polymer Science and Eng.*, 10, 619 (1987)
6. **"Structural Characterization of Crystallinity and Crystalline Orientation in Simultaneous Biaxially Stretched and Annealed Polyethylene Terephthalate Films"**,  
M. Cakmak J.L. White and J.E. Spruiell, *J. Polym. Eng.*, 6, 291 (1986)
5. **"Orientation Development and Crystallization in Melt Spinning of Fibers"**,  
J.L. White and M. Cakmak, *Adv. Polym. Technol.*, 6(3), 295 (1986)
4. **"Structure Development in Melt Spinning Polyvinylidene Fluoride Fibers and Tapes"**, Y. Wang, M. Cakmak and J.L. White,  
*J. Appl. Polym. Sci.*, 30, 2615 (1985)
3. **"An Investigation of the Kinematics of Stretch Blow Molding Polyethylene Terephthalate Bottles"**,  
M. Cakmak J.L. White, J.E. Spruiell, *J. Appl. Polym. Sci.*, 30, 3679 (1985)
2. **"A Basic Study of Orientation in Stretch Blow Molded Bottles"**,

M. Cakmak J.E. Spruiell, J.L. White, Polymer Eng. Sci., 24, 1390 (1983)

1. **"An Analysis of the Reflective Component of Small Angle X-Ray Scattering Patterns from Crazed Polystyrene"**,  
P.A. Westbrook, J.F. Fellers, M. Cakmak, J.S. Lin, R.W. Hendricks,  
J. Polym. Sci. Phys., 21, 1913 (1983)

#### **PENDING PATENTS( 2007):**

1. Novel Nanocomposite Polymers for the Production of Films with Enhanced of Strain Hardening Behavior Cakmak, Mukerrem (PI) , Mulligan, Jake H.
2. Controlled Electrical Conductivity in Polymers through the Use of Conductive and Non-Conductive Nano and Microparticles. Cakmak, Mukerrem ,Konishi, Yuma
3. A Novel Hybrid Manufacturing Platform to Produce Multifunctional Polymer Films Cakmak, Mukerrem (PI) ,Reneker, Darrell H.,Yalcin, Baris
4. Bio-Artificial Pancreas and a Procedure for Preparation of Same ,Kennedy, Joseph P. (PI) ,Erdodi, Gabor,Cakmak, Mukerrem,Yalcin, Baris

#### **REFEREED CONFERENCE PROCEEDINGS**

71. **"Reactive blends of poly(vinyl chloride) and thermoplastic polyurethanes"**.  
Baena, Johanna; Parnell, Shane; Min, K.; Cakmak, M. Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 3), 3946-3950
70. **"The effect of blend composition on deformation and stress-optical behavior of PEN/PEI blends using online mechano-optical technique."**  
Kanuga, Karnav; Cakmak, M..Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 2), 2168-2172.
69. **"The influence of molecular weight on the relaxation behavior of uniaxially stretched PEN films as investigated by real time spectral birefringence technique."** Martins, Carla Isabel; Cakmak, Miko. Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 2), 2135-2139
68. **"Linear and non-linear biaxial stress-optical behavior in pet films as observed by real time true stress-true strain -birefringence technique"**.

Hassan, M.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 2), 2127-2129.

67. “**Influence of blend composition on structure development during uniaxial stretching of melt miscible PVC/PCL films.**” Ramirez-Huerta, Mayela; Cakmak, Miko. Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 2), 1860-1864.
66. “**The comparative role of relaxation and forced retraction on the structural organization processes in uniaxially stretched PLA films from amorphous precursors** “. Mulligan, Jake H.; Cakmak, Miko Annual Technical Conference - Society of Plastics Engineers (2004), 62nd(Vol. 2), 1774-1778.
65. “**The effect of natural rubber crosslink density on real time birefringence, true stress and true strain behavior**”. Valladares, D.; Sen, T.; Cakmak, M.; Toki, S. Rubber Expo 2001, Fall Technical Program, 160th, Cleveland, OH, United States, Oct. 16-20, 2001 (2001), 2304-2311
64. “**True stress and true strain and real time birefringence development of orientation in rubber during uniaxial stretching as detected by spectral birefringence technique II. Natural rubber and synthetic polyisoprene.** “ Toki, Shigeyuki; Sen, Taner Zafer; Valladares, David; Cakmak, Miko. Rubber Expo 2001, Fall Technical Program, 160th, Cleveland, OH, United States, Oct. 16-20, 2001 (2001), 614-625.
63. “**X-ray studies of structural development during sequential and simultaneous biaxial stretching of polylactic acid film**” Ou, Xuesong; Cakmak, Miko. . Annual Technical Conference - Society of Plastics Engineers (2003), 61st(Vol. 2), 1701-1705
62. “**Uniaxial extension of PLA using fully automated on-line birefringence coupled with true stress - true strain measurement - part II: temperature effects**” Mulligan, Jake H.; Cakmak, Miko. . Annual Technical Conference - Society of Plastics Engineers (2003), 61st(Vol. 2), 1593-1596.
61. “**Uniaxial stretching of PLA using fully automated on-line birefringence coupled with true stress - true strain measurement - part I: stretching rate effects**” Mulligan, Jake H.; Cakmak, Miko. . Annual Technical Conference - Society of Plastics Engineers (2003), 61st(Vol. 2), 1588-1592

60. “ **The effect of nanoclay on the deformation behavior of polypropylene and PPgMA blends using online birefringence measurement system**”  
Fujiyama, Jane; Cakmak, M. Annual Technical Conference - Society of Plastics Engineers (2003), 61st(Vol. 2), 1347-1351
59. **Deformation behavior of rubber blends investigated by a new real time spectral birefringence system.** Fiorentini, Francesca; Cakmak, Miko. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 3), 3202-3205
58. **Investigation of microstructure developed in injection molded nylon 6 nanocomposites.** Yalcin, B.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 2285-2290.
57. **Effect of processing conditions on the development of morphology in clay nanoparticle filled nylon 6 fibers.** Ergungor, Zeynep; Cakmak, Miko; Batur, Celal. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 2280-2284
56. **Raman spectroscopy: a useful tool for characterizing the polymerization kinetics of polyurethanes.** Parnell, Shane; Min, K.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 2035-2039.
55. **The effect of natural rubber crosslink density on real time birefringence, true stress and true strain behavior.** Valladares, D.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 1771-1775.
54. **Basic mechanisms of structural ordering in uniaxial stretching of PLA using fully automated on-line birefringence coupled with true stress - true strain measurement.** Mulligan, Jake; Cakmak, Miko; Sen, T. Z. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 1646-1650
53. **“Real time development of orientation in PP during stretching as as detected by spectral birefringence technique.** Koike, Yutaka; Sen, Taner Zafer; Cakmak, Miko. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 1550-1555
52. **Basic studies on uniaxial deformation of nylon 6 - clay nanocomposite films.** Ergungor, Zeynep; Cakmak, Miko; Batur, Celal. Annual Technical Conference - Society of Plastics Engineers (2002), 60th(Vol. 2), 1519-1523

51. “ **Kinetics of rapid structural changes during heat setting of preoriented PEEK/PEI blend films as followed by spectral birefringence technique**” Bicakci, S.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2001), 59th(Vol. 2), 2291-2295
50. “ **Effect of nanoparticles and processing conditions on the development of structural hierarchy in injection molded nylon composites.**” Yalcin, B.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2001), 59th(Vol. 2), 2208-2212.
49. “**Real time birefringence development of orientation in polymers during uniaxial stretching as detected by robust spectral birefringence technique**”. Toki, S.; Valladares, D.; Sen, T. Z.; Cakmak, M.. Polymer Engineering Institute, University Of Akron, Akron, OH, USA. Annual Technical Conference - Society of Plastics Engineers (2001), 59th(Vol. 2), 1830-1834.
48. “**Real time development of stress and birefringence in PET during uniaxial stretching as detected by spectral birefringence technique**”. Sen, Taner Zafer; Toki, Shigeyuki; Cakmak, Miko. Annual Technical Conference - Society of Plastics Engineers (2001), 59th(Vol. 2), 1510-1514.
47. “**Effects of biaxial stretch ratio and stretch mode on the evolution of structural hierarchy in polylactic acid.**” Ou, X.; Cakmak, M.. Annual Technical Conference - Society of Plastics Engineers (2001), 59th(Vol. 2), 1461-1465
46. ” **Heat Affected Zone Structure in Vibration Welded Polyvinylidene Fluoride and its Copolymer** “ D. Valladares, M. Cakmak, SPE ANTEC, Tech. Pap. **46**, 1278(2000)
45. ” **The effect of Deformation and Composition on the Structure Evolution in the Preoriented PET/PEI Blend Films During Heat setting Process**” J. Choi, M. Cakmak SPE ANTEC, Tech. Pap. **46**, 1700(2000)
44. ” **Evolution of Structural Hierarchy in Uniaxially Deformed Branched PLA films as followed by Spectral Birefringence Technique and Others**” G. Kokturk, T. Serhatkulu, M. Cakmak SPE ANTEC, Tech. Pap. **46**, 1737(2000)
43. “ **The effect of TiO<sub>2</sub> Particles on the deformation Behavior and Orientation Development in PET Films**” A. Taniguchi, M. Cakmak, SPE ANTEC, Tech. Pap. **46**, 1786(2000)
42. **Compositional Effect On Phase Behavior And Uniaxial Deformation Properties For Polyethylene Naphthalate/ Polycarbonate Cast Films**A. Beers, M. Cakmak\* and K. Min. *SPE. Antec Tech. Pap.* **1667,45** (1999)
- 41 “ **Influence Of Composition On Deformation Behavior Of Blend Of Poly(Ether Ether Ketone) And Poly(Ether Imide)** “ *Jatin Panchal And M.Cakmak\* SPE. Antec Tech. Pap.* **1291,45** (1999)

40. **“The Effect Of Blend Composition And Draw Ratio On The Thermal, Optical, And Mechanical Properties In Pet/Pei Films.** “ *Jonghan Choi And M Cakmak SPE. Antec Tech. Pap. 1656,54 (1999)*
39. **“Real Time Monitoring Of Fast Birefringence Changes During Crystallization Of Preoriented Pet And Pla Films Using Spectral Birefringence Technique** T. Serhatkulu, G. Kokturk, ” M. Cakmak\*, *SPE. Antec Tech. Pap. 1645,54 (1999).*
38. **“Evolution of Structural Hierarchy in Uniaxially Deformed Poly Lactic Acid Films As Followed by Spectral Birefringence Technique and others”** G.Kokturk, T.F.Serhatkulu, A.Kozluca, E.Piskin, M.Cakmak SPE Antec Tech. Pap. 2190,45 (1999).
38. **“Development Of Structural Hierarchy In Injection Molded Dynamically Vulcanized Pp/Epdm Blends “** ,M. Cakmak\* and S. Cronin, *SPE Antec Tech. Pap. 1713, 45 (1999).*
37. **“Spatial Variation Of Structural Hierarchy In Injection Molded Polypropylene”**, H. Ayrom-Keuchel, *M. Cakmak\**, *SPE Antec Tech. Pap. 1910,45 (1999).*
36. **“Crystal Structures and Morphology of Thin Film, Melt Crystallized Poly ethylene naphthalate”** J. Liu, J. Myers,P.H.Geil, J.C. Kim and M. Cakmak, *SPE Antec Tech. Paper 43, 1562 (1997)*
35. **“Miscibility and Crystallization Behavior of PEN and PEN/PEI blends”** J.C. Kim , M. Cakmak and P.H. Geil, , *SPE Antec Tech. Paper 43, 1572 (1997)*
34. **“Effect of Composition on Crystalline Orientation and Optical Properties of biaxially Stretched PEN/PEI films”** J.C. Kim, M. Cakmak and Z. Zhou, , *SPE Antec Tech. Paper 43, 1588(1997)*
33. **“Phase and Uniaxial Deformation Behavior of Ternary Blends of PEN/PEI/PEEK”** S. Bicakci, X. zhou and M. Cakmak , , *SPE Antec Tech. Paper 43, 1593 (1997)*
32. **“ The influence of Biaxial Deformation and Annealing on Structure Developemtn in Ternary Blends of PEN/PEI/PEEK”** X. Zhou, S. Bicakci and M. Cakmak , *SPE Antec Tech. Paper 43, 1600 (1997)*
31. **“ Real time Sensing of Birefringence Development in Uniaxially Oriented PEN and PEN/PEI films using fast dual wavelength Optical Technique”** J.M. Galay and M. Cakmak, , *SPE Antec Tech. Paper 43, 1606 (1997)*
30. **“ Evolution of Structural Hierarchy in High Speed Spun PEN fibers”** M. Cakmak and J.C. Kim , , *SPE Antec Tech. Paper 43, 1616 (1997)*
29. **“ The Influence of Annealing on the Structural Hierarchy in Injection Molded PEN”** , *SPE Antec Tech. Paper 43, 1621 (1997)*
28. **“Structure Development at the Heat Affected Zones of Vibration Welded PEN parts”** M. Cakmak , J. Robinette, , *SPE Antec Tech. Paper 43, 1627 (1997)*

27. **“ Multistream Injection Molding: A new Processing technique to reduce the mechanical Anisotropy in Thermotropic LCP's”** M. Cakmak, D. Boles, , SPE Antec Tech. Paper 43, 1769 (1997)
26. **“Development of Noncontact techniques for on-line measurement of crystallizations: An integrated Laser Raman Spectroscopy and Light Depolarization System”** M. Cakmak, F. Serhatkulu, M. Graves and J. Galay, , SPE Antec Tech. Paper 43, 1794 (1997)
25. **“Structure Development In Injection Molded PVDF/PMMA blends”**  
Y.D. Wang M. Cakmak, SPE ANTEC Tech. Papers. (42, 1996)
24. **“ Structure Development in Uni and Biaxially Stretched PVDF/PMMA films”**  
X. Zhou and M. Cakmak , SPE ANTEC Tech. Papers. (42, 1996)
- 23 **“ Texture in Injection Molded Poly ethylene naphthalate”**  
Y. Ulcer and M. Cakmak SPE ANTEC Tech. Papers. (42,1996)
22. **Structure Development In Solid State Extruded Poly hydroxybutyrate co hydroxy valerate** SPE ANTEC Tech. Papers. (42, 1996)
21. **“Necking Behavior and Structure Development in Uni and Biaxially Stretched Poly (ethylene naphthalate)/Poly ether imide films”**  
J.C. Kim, M. Cakmak  
SPE Antec. Tech. Papers, **41**, 1453 (1995)
20. **“Phase Behavior and Structure Development in Blends of Melt Spun PEEK/PEI fibers**  
R. Ozisik and M. Cakmak  
SPE Antec. Tech. Papers, **41**, 1719 (1995)
19. **“ Structural Characterization of Injection Molded PVDF and PVDF/PMMA blends”**  
Y.D. Wang and M. Cakmak  
SPE Antec. Tech. Papers, **41**, 1776 (1995)
- 18, **“Structural Gradients Developed in Injection Molded Syndiotactic Polystyrene “**  
Y. Ulcer, M. Cakmak, J. Miao, C.M. Hsiung,  
SPE Antec. Tech. Papers, **41**, 1788 (1995)
17. **“ Injection Molding of Syndiotactic Polystyrene: The effects of Mold Geometry and Mold Temperature”**  
C.M. Hsiung, J. Miao, M. Cakmak, Y. Ulcer,  
SPE Antec. Tech. Papers, **41**, 1798 (1995)
- 16.**“A Fast Dual Wavelength Optical Technique to Study the Crystallization in Pre-oriented PET films”** with H. Venkatesvaran  
SPE ANTEC Tech. Pap. **39**, 257 (1993)
15. **“ Influence of Glass fibers on the Spin Welding of Thermotropic Liquid Crystalline Polymer”** with D. Festa

- SPE ANTEC tech. Pap. **39**, 2082(1993)
14. "**Dynamics and Structure Development in Solid State Extruded VF2/VF3 copolymers**" J.S. Lee and M. Cakmak  
SPE ANTEC Tec. Pap. **38**, 1396 (1992)
  13. "**The effect of Glass Fiber Fillers on the Welding Behavior of Poly p-phenylene Sulfide**", H. Rajaraman and M. Cakmak,  
SPE ANTEC Tec. Pap. **38**, 896 (1992)
  12. "**Instrumented Spin Welding of Polyvinylidene Fluoride**"  
S. Schaible and M. Cakmak, SPE ANTEC Tech. Pap. **38**, 893 (1992)
  11. "**Spin Welding Behavior and Structure Development in a Thermotropic Liquid Crystalline Polymer**" D. Festa and M. Cakmak,  
SPE ANTEC. Tech Pap. **38**, 344 (1992)
  10. "**Significance of Curie Transition Temperature on the Uniaxial Deformation Behavior of VF2/VF3 Copolymers**", J.S. Lee and M. Cakmak,  
SPE ANTEC Tech. Pap. 37, 900 (1991)
  9. "**Characteristics and Processing of Tin-Thermoplastic Compounds**"  
B. Kalvani and J.L. White and M. Cakmak,  
SPE ANTEC Tech. Pap. 37, 1165 (1991)
  8. "**Characterization of Structural Gradients in an Injection Molded Thermotropic Liquid Crystalline Polymer**" C.M. Hsiung and M. Cakmak,  
SPE ANTEC Tech. Pap. 37, 1063 (1991)
  7. "**Phenomenological Modeling of Structural Gradient Development in Injection Molding of Slowly Crystallizing Polymers: Poly p-phenylene Sulfide**"  
C.M. Hsiung and M. Cakmak,  
SPE ANTEC Tech. Pap. 37, 2378 (1991)
  6. "**Spin Welding of Polypropylene: Characterization of Heat Affected Zone by Micro Beam WAXS Technique**" K. Keuchel and M. Cakmak,  
SPE ANTEC Tech. Pap. **37**, 2477 (1991)
  5. "**Structure Development in Injection Molding of Poly Ether Ether Ketone (PEEK)**"  
C.M. Hsiung, M. Cakmak and J.L. White,  
SPE ANTEC Tech. Paper, 34, 1685 (1988)
  4. "**Processing-Structure-Property Relationships in Biaxially Stretched EPDM/PP Thermoplastic Elastomers**",  
M. Wang and M. Cakmak, SPE ANTEC Tech. Papers, 34, 1708 (1988)
  3. "**Shear Viscosity and Structure Development Characteristics in Injection Molding Poly-p- Phenylene Sulfide**",  
C.M. Hsiung, M. Cakmak and J.L. White,  
SPE ANTEC Tech. Papers, 32, 128 (1986)
  2. "**Small Angle X-Ray Scattering Studies on Simultaneous Biaxially Stretched Polyethylene Terephthalate Films**", M. Cakmak, J.E. Spruiell, J.L. White,  
SPE ANTEC Tech. Papers, 31, 728 (1985)

1. "Structure Development in Stretch Blow Molding Polyethylene Terephthalate Bottles",

M. Cakmak, J.E. Spruiell, J.L. White,  
SPE ANTEC Tech. Papers, 31, 912 (1985)

**G. CONFERENCE PREPRINTS**

1. "Development and Characterization of Orientation in Poly-p-phenylene Sulfide: Fibers, Films and Injection Molded Parts, SPE RETEC Preprints, "New Advances in Oriented Plastic s", pp. 44 (1987)
2. "Characterization of Multiaxial Orientation and Its Measurement in Glassy and Semi-Crystalline Polymers", SPE RETEC Preprints, "New Advances in Oriented Plastics", pp. 30 (1987)
3. "Structure Development and Haze Effects in the Extrusion of Tubular Film" SPE RETEC Preprints, "New Advances in Oriented Plastics", pp. 145 (1987)
4. "Structure Development in Melt Processing Aromatic Polycondensates: PPS, PPO, PEI, PES and PEEK", Proc. Fiber Prod. Conf., (1986)
5. "On-Line Small angle and Wide angle X-ray diffraction Studies on Melt Spinning Polyvinylidene Fluoride Using Synchrotron Radiation" Proc. of Int. Conf. on Fiber and Textile Science, p1, (1991)
6. "Techniques for Measurement of Structure Property Relationships in Coating Deformation" G.M. Cintra, T.L. Levendusky, H. Venkatesvaran and M. Cakmak ACS Polymer Prepr. **34**, 889 (1993)
7. "Evaluation of Molecular Orientation for Biodegradable Fibers from PHB/HV copolymer", Y. Furuhashi, T. Kikutani, T. Yamamoto, M. Kimizu, M. Cakmak, Sen-I Gakkai Preprints, G210 (1994)

**H. CONFERENCE PRESENTATIONS ( Partial List)**

1. "Optical and Other Structural Studies of Biaxially Stretched Films of Poly Buthylene Terephthalate and Poly Ethylene Isophthalate Blends", Polymer Processing Society Meeting, Buffalo, NY, September (1987)
2. "Processing Characteristics and Structure Development in Cold-Rolling Poly ether Ether Ketone", Polymer Processing Society Meeting, Stuttgart, W..Germany, April (1987)
3. "Structure Development in Injection Molding Poly Ether Ether Ketone", Akron Polymer Conference, "Ordered Polymers", Akron, OH, May (1987)
4. "Optical Properties of Biaxially Stretched Polyethylene Terephthalate Films", ACS Meeting, Denver, (1986)
5. "The effects of Drawing Polyethylene in the Solid State on Crystallographic, Morphological and Mechanical Properties", ACS Meeting, Knoxville, TN (1980)

6. "Processing and Structure-Property Relationships in Cold-Rolled Poly-p-phenylene Sulfide", Polymer Processing Society Meeting, Buffalo, NY, September (1987)
7. "Effect of Biaxial Stretching on Structure and Surface Roughness of Thermoplastic Films", Polymer Processing Society Meeting, Orlando, FL, May 1988)
8. "Phase Structure/Orientation of Minor Phase and Polymer Metal Blends", Polymer Blends and Alloys Meeting, Princeton, NY, September (1988)
9. " Detailed Investigations of Structural Layering Phenomena in Injection Molded Thermotropic Liquid Crystalline Polymers by Micro Beam X-ray Diffraction and Color Image Analysis Techniques"  
Polymer Processing Society Meeting, Hamilton CANADA (1991)
10. " Examination of Fiber structure by On-line SAXS- WAXS methods"  
50 th Anniversary Meeting of Japanese Fiber Society ( INVITED SPEAKER)  
Yokohama , Japan ( Oct. 1994)
11. " Structure Development in Melt Spun PVDF/PMMA Fibers", M. Cakmak and S. Mahant, 50 th Anniversary Meeting of Japanese Fiber Society  
Yokohama , Japan( Oct. 1994)
12. " Phase Behavior and Structure Development in Blends of Melt Spun PEEK and PEI, R. Ozisik and M. Cakmak (50 th Anniversary Meeting of Japanese Fiber Society Yokohama , Japan( Oct. 1994)
13. " Development of Structure and Properties of PEN and Its Blends with Polyether imide", J.C. Kim and M. Cakmak Beni Bana International Conference on High Speed Spinning ( Nov. 1994) ( INVITED SPEAKER)

In addition to above, a large number of conference presentations in Polymer Processing Society and Society of Plastics Engineers, ANTEC meeting were made

5. INVITED SEMINAR PRESENTATIONS:

1. Stevens Institute of Technology (Nov. 1984)
2. Mobil Company, Linden, NJ (Nov. 1984)
3. Becton-Dickinson Company, NJ (Oct. 1985)
4. Monsanto Company, Springfield, MA (Nov. 1985)
5. Dow Chemical Company, Midland, MI (Sept 1988)
6. General Electric Co. Schenectady, NY (Sept 1988)
7. American Cyanamid Co. Stamford, CT (Oct. 1988)
8. Workshop on Polyblends, Princeton, NJ (Sept 1988)
9. Amoco Company, NJ (Jan. 1989)
10. Davis and Geck Co., CT (Nov. 1988)
11. Celanese Company, NJ (Oct. 1988)
12. Chemical Council Meeting St. Louis, MO (Oct. 1988)  
(Poster Presentation)
13. Alcoa Company ( Fall 1991)
14. Dow Chemical Co. ( Spring 1992)
15. Eastman Kodak , Rochester( Nov, 1992).
16. International Center for Mechanical Sciences, Udine , ITALY ( Sept, 1994)  
( One week long short course on polymers)
17. Exxon Co., Houston (Dec. 1993)
18. Eastman Kodak , Rochester (Jan. 1994)
19. Asahi Chemical Co. Japan ( Nov , 1994)
20. Toray Chemical Co. Japan ( Oct. 1994)
21. Tonen Chemical Co. Japan (Oct. 1994)
22. Dow Chemical, Midland Mi. ( April 1996)
23. Eastman Kodak co. Rochester NY (April 1996)
24. University of Tennessee, Knoxville TN , Nov. 1996
25. Clemson University, Clemson SC Dec. 1996
26. Cornell University, Ithaca, NY Dec. 1996
27. North Carolina State Univ. Raleigh NC ,April 1997

28. Shell Polyester Division, Akron, OH May 1997  
large number of additional seminars given since 1997

## STUDENTS GRADUATED

1. Matthew Niemeyer ,M.S.- "Processing-Structure-Property Relationships in Cold Rolled PEEK and PPS"
2. Min Diaw Wang ,M.S.- "Processing-Structure-Property Relationships in Biaxially Stretched and Tubular Blown Thermoplastic Elastomer Films"
3. C.M. Hsiung ,PhD.-"Processing Structure Property Relationships and Simulation of Structure Gradients in Injection Molded Semi-Crystalline Aromatic Polycondensates" (1990)
4. M. Simhambhatla M.S. "Fundamental Studies on Biaxial Stretching , Plasma Treatment and Vacuum Metallization of Poly (ether ether ketone) (PEEK) films"
5. J. Tse , M.S. "Processing-Structure-Property Relationships in Biaxially Stretched Poly (buthylene)terephthalate and Polyethylene isophthalate blends"
6. Y.C. Yoon, M.S. ( 1991)"Structure Development in Rolled Poly(Vinylidene Fluoride)"
7. H.J. Kang, PhD.“ Structure Development and Dynamics in Double Bubble Tubular Film Processing” ( 1989) ( CO-ADVISED)
8. S.S. Song, Ph.D. “ Fundamental Study of Structure Development and Processing in Aromatic Polycondensates” (1989) ( CO-ADVISED)
9. J.S. Lee, Ph.D. (1991) "Fundamental Properties And Structure Development In Solid State Processed Vinylidene Fluoride / Trifluoroethylene Copolymers"
10. S.W. Lee, M.S. (1992) " Fundamental Studies on Crystallization Kinetics and Necking Behavior of Poly ethylene 2,6,- naphthalate"
11. Stephen G. Schaible, M.S. (1992)" Investigations of Instrumented Spin Welding and Vibration Welding of Poly(vinylidene fluoride)
12. M.R.F. Azmoudeh, M.S. (1992) " Synergistic Processing Strategies in Forging of Polymer-Metal Powder Mixtures"

13. H. Rajaraman, M.S. (1992) " Studies on the Spin Welding Behavior of Poly p- phenylene Sulfide Composites"
14. Hari N. Venkatesvaran, M.S. (1992) " A Fast Dual Wavelength Optical Technique for Studying Crystallization in pre-Oriented PET films"
15. D. Festa, M.S. (1993) " Effect of Glass fiber fillers on Spin Welding Behavior of Thermotropic Liquid Crystalline Polymer"
16. R. Woods, M.S. (1992) " Forging of Thermoplastic Powders"
17. S. Mahant, M.S. (1993) " Melt Spinning of PVDF/PMMA "
18. D. Boles, M.S. (1994) "The effect of mold cavity geometry On orientation development in injection molding of thermotropic liquid crystalline polymers"
19. K. Keuchel, M.S. (1994) " Instrumented Spin Welding of Polypropylene"
20. S. Ghosh, M.S. (1994) " Crystallization Behavior and Processing-Structure-Property Relationships in Binary Blends of PPS"
21. J.C. Kim , Ph.D. (May 1995) "The influence of Processing History on Structural Characteristics of Polyethylene 2,6 Naphthalene Dicarboxylate) and Poly (ether imide) blends.
22. Y. Ulcer, Ph.D. (December 1995) "Injection Molding of Slowly Crystallizing Polymers"
23. Y.D. Wang , Ph.D. ( May 1996) " Processing Structure Property Relationships in Injection Molded PVDF and blends of PVDF with PMMA"
24. R.Ozisk " M.S. (1996) "Phase Behavior and Structure Development in Melt Spun PEEK/PEI blends"
25. S. Cronin, M.S. 1998" The effect of composition and processing conditions on the structure development in injection molded dynamically vulcanized PP/EPDM blends"
26. H.Ayrom-Keuchel Ph.D(1997) "Development of spatial structural hierarchy in injection molded isotactic polypropylene"
27. X.Zhou, Ph.D ( 1998) "Processing-structure-property relationships in uni- and biaxially stretched binary and ternary blends"

28. M. Graves MS. (1998) "On-line measurements of crystallization of low density polyethylenes using integrated fiber optic laser Raman spectroscopy, light depolarization and small angle laser light scattering techniques"
29. A. Beers.M.S. (1999) "Deformation behavior and structural development of polyethylene naphthalate/polycarbonate blends"
30. P. Jatin, MS(1999). "Influence of composition on deformation behavior in blends of Poly Ether Ether Ketone (PEEK) and Poly Ether Imide (PEI)"
- 31.S. Bicakci , PhD. (2000). "Miscibility, uniaxial deformation behavior and annealing studies in binary and ternary blends of poly(ethylene naphthalate), poly(ether imide), and poly(ether ether ketone) i"
- 32.Gbolrami Adebayo, Ph.D. (2001) "Design, validation and implementation of on-line measurement techniques to study the phase behavior of partially miscible PMMA/PαMSAN blends under quiescent and flow conditions, and application to filled-PVC in quiescent mode"
33. T. Serhatkulu , PhD. (2000)" Crystallization and birefringence studies on fast structural changes followed by non-contact spectral birefringence and Raman spectroscopy techniques"
- 34.T. Sen, PhD. (2003) "Investigation of dynamics and structure development during uniaxial stretching of PET films at different molecular weights using fully automated spectral birefringence technique"
- 35.P. Koombhongse, PhD. (2001)" Phase behavior and morphology of SAN/PMMA under high flow rates"
36. D. Valladares MS(2002)" Real time strain induced crystallization and structural hierarchy time evolution in crosslinked natural rubber"
- 37.J. Choi, PhD(2001)." A study of structure evolution during deformation and subsequent heat-setting process in poly(ethylene terephthalate) and poly(ether imide) binary miscible blends"
38. B. Yalcin PhD. ( 2003) " Injection molding of Nylon 6 –Clay Nanocomposites"
39. Y. Konishi M.S. (2004) Nanoparticle induced carbon black network self-assembly and structural hierarchy development in injection-molded conductive composites
40. M. Hassan , PhD.(2004) Novel true stress-true strain-birefringence measurement systems for real time measurement during multiaxial deformation and heat setting of polymer films: "Application on PET films"

41. F. Fiorentini, PhD.(2004) "Fundamentals of Structuring During Mixing and Deformation of Rubber Compounds Studied by Real-time Sensing Techniques."

42 M. Ramirez M.S.(2004) "Influence of Blend Composition on Structure Development During Uniaxial Stretching of Poly(Vinyl Chloride) / Poly (ε-Caprolactone)."

43. X Ou, PhD.(2004)" "Structural Mechanisms as Revealed by Real Time Mechano Optical Behavior of PolylacticAcid Films in Uni and Biaxial Deformation and Heat-setting Processes"

44. C. Martins,PhD.(2004) "Mechano Optical Behavior of PET and PEN Under Linear and Programmed Deformation Rate Profiles"

45. M. Ghanem, M.S.(2004)  
The effect of processing conditions on the structural gradients developed in injection molded bacterial Poly (3Hydroxybutyrate-co-3Hydroxyvalerate) parts

46. J. Mulligan, PhD. (2004) Non-linear stress optical behavior of poly l-lactic acid and its nanocomposites during stretching/relaxation/retraction from amorphous precursors

47.Karnav Kanuga, PhD. (2006) "A fundamental study on the non-linear mechano-optical behavior of polyethylene naphthalate, its blends with polyetherimide and its nanocomposites"

48.Teik Lim Kwa , MS Thesis (2006) "Novel On-Line True Stress-Strain-Electrical Conductivity Uniaxial Tensile Stretching System And Its Utility On Electrically Conductive Polylactic Acid (PLA) Nanocomposites"

#### CURRENT STUDENTS

1. Jane Fujiyama -Novak, PhD
2. Han Yan, PhD
3. Wei Zhao, PhD
4. Sylvain. Seif, PhD
5. Jason E. Drum, PhD
6. Amy Blake, PhD
7. Krystle Dzienis, PhD
8. Emre Unsal, PhD

9. Orcun Yucel, PhD

**1. COURSES TAUGHT AT  
POLYMER ENGINEERING DEPARTMENT**

1. 9841: 651 **Polymer Engineering Laboratory**
2. 9841:622 **Analysis Design of Polymer Processing Operations I.**
3. 9841:623 **Analysis Design of Polymer Processing Operations II.**
4. 9841 :741 **Phase Transformations in Polymeric Systems**
5. 9841:650 **Introduction to Polymer Engineering**
6. 9841:611 **Characterization of Polymers by Electromagnetic Radiation**
7. 9841: 713 **Radiation, Scattering And Diffraction By Polymeric Materials**
8. 9841: 711 **Advanced Electromagnetic Radiation and Optical Properties**

## **COMMITTEES SERVED**

### **UNIVERSITY COMMITTEES**

1. Presidential Advisory Committee ( 1993-1994).
2. Graduate Membership Committee ( 1994- 1996)

### **COLLEGE COMMITTEES**

1. College Equipment Committee (1992- PRESENT)
2. College Distinguished Prof. Committee( 2005-2007)

### **DEPARTMENTAL COMMITTEES**

1. Departmental Equipment Committee (1990-PRESENT)
2. Departmental Awards Committee (2004- Present)