

Rangaramanujam M. Kannan

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DEPARTMENT/COLLEGE: Chemical Engineering and Materials Science, Biomed. Engg

PRESENT RANK & DATE OF RANK: Associate Professor (since May 2003)

EDUCATION:

High School: I. C. F. Higher Secondary School, Madras, India
Baccalaureate: B.E.(Hons.), Chemical Engg., Birla Institute of Tech. & Sci., India, 1987
Graduate: M. S., Chemical Engineering, Penn State University, 1989
M. S., Chemical Engineering, California Institute of Technology, 1992
Ph.D., Chemical Engineering, California Institute of Technology, 1994
Postdoctoral: Research Associate, Chemistry/ChE, University of Minnesota, 1994-1995

RESEARCH EXPERIENCE:

5/2006-present	Chief Technical Officer	nanoScience Engineering Corporation
2004-2005	Co-founder, Research Director	nanoScience Engineering Corporation
2007-present	Team Leader, Nanotechnology,	NICHD Perinatology Research Branch
2003- current	Associate Professor,	Chemical Engineering and Materials Science
2002-current	Joint appointment ,	Department of Biomedical Engineering, Wayne State
2003 ---	Full Member,	Barbara Ann Karmanos Cancer Institute
1997- 2003	Assistant Professor,	Department of Chemical Engineering and Materials Science, Wayne State University
1995-1997	Senior Research Engineer,	3M Corporate Research Laboratories
1994- 1995	Postdoctoral Associate,	University of Minnesota

HONORS AND AWARDS:

Fellow of the American Academy of Nanomedicine (August 2006)
Ralph C. Wilson Foundation Scholar (2007)
Ad hoc Member, National Cancer Institute Special Emphasis Study Section ZCA1-SRRB-3(C1);
Faculty of 1000 publication
NSF CAREER Award (1999)
3M Non-tenured Faculty Award (1998 – 2000, 2002-2004)

Wayne State University Faculty Research Award (1997-1998, 1998-1999)
Unilever Award for outstanding Ph.D. thesis in polymer Science by ACS (1995)
American Chemical Society Honor symposium for Unilever award (1995)
Charles Lee Powell Foundation Graduate Fellowship at Caltech (1992-1994)
Du Pont Graduate Fellowship at Caltech (1989 – 1990)

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Institute of Chemical Engineers
American Physical Society
American Academy of Nanomedicine

I. TEACHING

A. Years at Wayne State : 11 years

B. Courses Taught at Wayne State

COURSE NAME	NUMBER	CREDITS
Polymer Science	CHE/MSE 535	3
Polymer Solutions	CHE/MSE 735	3
Advanced Kinetics	CHE 7400	4
Measurements Laboratory	CHE3220	2
Fluid Flow & Heat Transfer	CHE 3200	4
Adv Transport Phenomena	CHE 7200	4
Polymer Rheology	CHE 7330	3
Drug Delivery	CHE 7995	3
Intro to NanoBioScience	PSL 7210 (team taught)	3

Developing a graduate certificate program in Nanotechnology and Nanomedicine

C. Graduate Student Advised: 7 PhDs and 4 MS

Semen Kharchenko (**PhD** in ChE - October 2001), currently at Masco R &D
Vivek Maheshwari (**M. S.** ChE (Thesis) – September 2001) currently at U. of Nebraska
Gautam Parthasarthy (**M. S.** MSE (Thesis) – August 2001)
Ekta Misra (**M. S.** MSE (Thesis) – July 2001) currently at Intel
Parag Kolhe (**Ph.D.** MSE – April 2004) currently at Pfizer
Michael Sevegney (**Ph.D.** ChE – April 2004) currently at Pall corporation
Sezen Gurdag (**Ph.D.** – May 2005) currently at Kordsa Corporation (Izmit, Turkey)
Ganapathy Subramaniam (**M.S.** June 2005)(with E. Gulari)
Ajay Kulkarni (**Ph.D.** – May 2006) currently at
Rajyalakshmi Inapagolla (**Ph.D** – December 2006)
Steve Horsch (**Ph.D.**- June 2006 (with E. Gulari) currently at Dow Chemical R & D

D Graduate Students - Current

Robert Bellair (Ph.D. candidate MSE –5th year)- expected graduation 12/08
Mihai Manitiu (Ph.D. candidate – 3rd Year) - expected graduation 12/09
Yunus Emre Kurtoglu – (Ph.D candidate –5th year)-expected graduation 12/08
Bharath Rajaguru (Ph.D. candidate t –6th year) – expected graduation 12/08
Kevin Baker (Ph.D. student, BME – 2nd year)
Admira Bosjanovic (PhD student-MSE, 2nd year)

E. Post-doctoral Associates - Previous:

Jayant Khandare, PhD (7/2003 –7/2004)
Gulay Serhatkulu, PhD (8/2003-7/2005)(joint with E. Gulari)
Gerald Hofmann, PhD (currently at 3M)(1999-2000)
Jayendra Patole, PhD (10/2004 – 12/2005)
Kishore Kotta, PhD (3/2006 – 7/2007)
Hrushikesh Agashe, PhD (5/2006 – 7/2007)
Jianmei Wu, PhD (8/2006 – 8/2007)

F. Post-doctoral Associates - Current:

Manoj Mishra, PhD (10/2007-current)
Hye-Jung Han, PhD (9/2007 – current)
Raghavendra Navath, PhD (7/2007-current)
Hui Dai, MDPhD (10/2007-current)(joint with S. Kannan)
Bing Wang, MDPhD (10/2007-current)(joint with S.Kannan)

G. High School Students

1. Shipa Raja (West Bloomfield High School) – currently at Harvard – winner of prizes in international science competitions
2. Kalyan Sreeram (Novi High School)- currently at Wayne State MD program
3. Shravani Mikkilineni (Contry Day High School) – to attend MIT-winner of prizes in international science competitions

II. RESEARCH

A. External Funding (Current)

1. **Project Title:** Dendrimer-based functionally-optimized nanodevices for the diagnosis and treatment of chorioamnionitis: preparation to translation
Role: PI (RM Kannan- 80% share) (co-PI Sujatha Kannan-20% share)
Source: NIH/NICHD/Perinatology Research Branch
2. **Project Title:** “Development and characterization of polymer clay nanocomposites” (NSF SBIR Phase II subcontract)
Role: PI

Source: nanoScience Engineering Corp (NSF SBIR Phase II subcontract)

3. **Project Title:** In vivo evaluation of dendrimer nanodevices for neuroinflammation
Role: PI (RM Kannan-33% share), co-I (S. Kannan-33% share), co-I (R. Iezzi-33% share)
Source: Ralph C. Wilson Foundation for Biomedical Engineering

III. PUBLICATIONS

A. Articles in Refereed Journals (* denotes corresponding author)

[41] 'Drug release mechanisms and kinetics from dendrimer-drug conjugates with glutathione sensitive linkers', Y.E. Kurtoglu, R. Navath, B. Wang, R. Romero, S. Kannan, **RM Kannan***, *submitted to Biomaterials*, 10/2008

[40] 'Structure and mechanical properties of supercritical carbon dioxide processed porous resorbable polymer constructs', K.C. Baker, R. Bellair, M. Manitiu, H.N. Herkowitz, **R.M. Kannan***, *accepted, Journal of Mechanical Behavior of Biomedical Materials*, September 2008.

[39] 'Dendrimer-drug conjugates for tailored intracellular drug release based on glutathione levels', R. Navath; Y.E. Kurtoglu; B. Wang; S. Kannan; R. Romero; **R.M. Kannan***, *accepted, Bioconjugate Chemistry*, October, 2008

[38] 'Role of Polymer-Clay Interactions and Nano-clay Dispersion on the Viscoelastic Response of a Series of scCO₂ Dispersed Clay/PVME Nanocomposites', S. Horsch, M. Manitiu, E. Gulari, **RM. Kannan***, *revised and submitted to macromolecules* (9/2008).

[37] 'Supercritical CO₂-processed dispersed polystyrene-clay nanocomposites', 'M. Manitiu, R. Bellair, S. Horsch, E. Gulari and **R. M. Kannan***, *in press, Macromolecules*, September, 2008

[36] 'Dendrimer surface functionality affects cellular interactions', O. Pillai, R. Inapagolla, **RM.Kannan**, S.Kannan*, *Biomaterials* (2008), 29(24-25), 3469-3476

[35] 'Engineering Strength, Porosity, and Emission Intensity of Nanostructured CdSe Networks by Altering the Building Block Shape", H. Yu, R. Bellair, **RM.Kannan**, S. Brock*, *Journal of American Chemical Society* (2008), 130(15),5054-5055

[34] 'Preparation and characterization of PAMAM dendrimer-Streptokinase conjugates', X. Wang, Rajyalkshmi I, S. Kannan, **R. M. Kannan**, *Bioconjugate Chem.*(2007), 18(3), 791-799

[33] 'Supercritical CO₂ dispersion of nanoclays and polymer-clay nanocomposites', S. Horsch, G. Serhatkulu, E. Gulari, **R. M. Kannan***, *Polymer* 47(21), 7485 (2006)

[32] 'Rheo-optical measurements of the first and third normal stresses of homopolymer polyvinyl methyl ether melt', A. Kulkarni, S. Kharchenko, **R. M. Kannan***, *Rheologica Acta*, (2006), 45(6), 951-958.

[31] 'Activity of dendrimer-methotrexate conjugates in sensitive and resistant cell lines', S. Gurdag, J. Khandare, S. Staples, **R. M. Kannan***, L. Matherly, *Bioconjugate Chem.* (2006), 17(2):275-83

(among the top 10 most accessed articles during that period, Faculty of 1000 publication, highlighted by NIH (Nano) and other publications)

[30] 'Monitoring elasticity in syndiotactic polypropylene films', G.parthasarathy, M. Sevegney, **R.M. Kannan***, *Polymer*, 46(17), 6337 (2005)

[29] 'Design and evaluation of dendritic nanodevices with high drug payload for enhanced cellular delivery', P. Kolhe, J. Khandare, O. Pillai, S. Kannan, M. Lieh-Lai, **R. M. Kannan***, *Biomaterials*, 27 (4): 660-669 FEB 2006

[28] 'Synthesis, Cellular Transport and Activity of PAMAM Dendrimer-Methylprednisolone Conjugates', J. Khandare, P. Kolhe, O. Pillai, S. Kannan, M. Lieh-Lai, **R. M. Kannan***, *Bioconjugate Chemistry*, **16** (2), 330 -337, 2005

[27] 'Vibrational spectroscopic investigation of stereoregularity effects in syndiotactic polypropylene structure and morphology', M. Sevegney, **R.M. Kannan***, R. Naik, V. Naik, *VIBRATIONAL SPECTROSCOPY* 40 (2): 246-256 MAR 17 2006

[26] 'A rheo-optical FTIR spectrometer for the investigation of deformation behavior in complex polymers', M. Sevegney, G. Hofmann, **R. M. Kannan***, *Int. J. Poly. Anal. Char.* **9**, 245-274 (2004)

[25] 'FTIR Spectroscopic Investigation of Thermal Effects in Semi-Syndiotactic Polypropylene', M. Sevegney, **R. M. Kannan***, P. Percha, A. Siedle, *J. Poly.Sci. (PP)*, 43(4), 493-461 (2004)

[24] 'Hyperbranched polymer-drug conjugates with high drug payload for enhanced cellular delivery', P. Kolhe, J. Khandare, O. Pillai, S. Kannan, M. Lieh-Lai, **R. M. Kannan***, *Pharm. Research*, 21(12), 2185-2195 (2004)

[23] 'Novel streptokinase nanodevices for thrombolysis: preparation, in vitro, and in vivo studies, S. Kannan*, O. Pillai, RM Kannan, *CHEST*, 126(4), 878S (2004)

[22] 'Effect of dendrimer end functionality on the cytotoxicity and the cellular drug delivery in lung epithelial cells', S. Kannan, P. Kolhe, **R. M. Kannan***, M. Lieh-lai, M. Glibatec, *Journal of Biomaterials Science: Polymers Edition*, 15(3), 311 (2004)

[21] 'Deformation-induced morphology changes and orientation behavior in syndiotactic polypropylene', M. Sevegney, G. Parthasarthy, **R. M. Kannan***, *Macromolecules*, 36(17), 6472 (2003)

[20] 'A rheo-optical FTIR spectrometer for the investigation of deformation behavior in complex polymers', M. Sevegney, G. Hofmann, R. M. Kannan, *Int. J. Poly. Anal. Char.* **9**, 245-274 (2004)

[19] 'Improvement in ductility of chitosan through blending and copolymerization with PEG: FTIR investigation of molecular interactions', P. Kolhe and R. M. Kannan, *Biomacromolecules*, Vol. 4 (1), 173-180 (2003)

[18] 'Drug complexation, in vitro release, and cellular entry by dendrimers and hyperbranched polymers', P. Kohle, E. Misra, R. M.Kannan, S. Kannan, M. Lieh-Lai, *International Journal of Pharmaceutics*, 259, 143-160 (2003) (**top 10 most accessed articles of the journal in 2003**)

- [17] 'Role of architecture on the conformation, rheology, and orientation behavior of linear, star, and hyperbranched polymer melts: 2. Linear viscoelasticity and flow birefringence' by S. Kharchenko and **R. M. Kannan***, *Macromolecules*, 36(2), 407-415 (2003)
- [16] 'Role of architecture on the conformation, rheology, and orientation behavior of linear, star, and hyperbranched polymer melts: 1. Synthesis and Molecular Characterization' by S. Kharchenko, **R. M. Kannan***, J. Cernohous, and S. Venkataramani, *Macromolecules*, 36(2), 399-406 (2003)
- [15] 'Rheo-optical FTIR Spectroscopy of the deformation behavior in quenched and slow-cooled isotactic polypropylene films', G. Parthasarthy, M. Sevegney, **R. M. Kannan***, *J. Poly. Sci. (Poly. Phys.)*, 40(22), 2539-2551 (2002)
- [14] 'Unusual contributions of molecular architecture to rheology and flow birefringence in hyperbranched polystyrene blends', S. Kharchenko, **R. M. Kannan***, J. Cernohous, S. Venkataramani, G. Babu, *J. Poly. Sci (Poly.Phys)*, 39, 2562 (2001)
- [13] 'Effect of composition fluctuations on tracer diffusion in symmetric diblock copolymers', R. M. Kannan, T. P. Lodge & J. Su, *J. Chem. Phys.*, 108(11), 4634-4639 (1998)
- [12] 'Diffusion in block copolymer microstructures', T. P. Lodge, M. Hamersky, J. Milhaupt, R. M. Kannan, M. C. Dalvi, and C. Eastman, *Macromolecular Chem. & Phy., Macro.Symp.*, Vol. 121, 219 (1997)
- [11] 'Viscoelastic properties of highly entangled poly(vinyl methyl ether)', R. M. Kannan, T. P. Lodge, *Macromolecules*, Vol.30 (12), 3694-3695 (1997)
- [10] 'Dynamics of disordered diblocks of polyisoprene and polyvinylethylene', B. H. Arendt, R. Krishnamoorti, R. M. Kannan, K. Seitz, J. A. Kornfield & J. Roovers, *Macromolecules*, 30 (4), 1138-1145 (1997)
- [9] 'Effect of mesophase order and molecular weight on the dynamics of nematic and smectic side - group liquid - crystalline polymers, S. F. Rubin, R. M. Kannan, J. A. Kornfield, & C. Boeffel, *Macromolecules*, Vol. 28(10), 3521 (1995)
- [8] 'Evolution of microstructure and viscoelasticity during flow alignment of a lamellar diblock copolymer', R. M. Kannan & J. A. Kornfield, *Macromolecules*, Vol. 27, 1177-1186 (1994)
- [7] 'Stress - optical manifestations of molecular and microstructural dynamics in complex polymer melts', R. M. Kannan & J. A. Kornfield, invited paper, *Journal of Rheology*, Vol. 38(4), 1127-1150 (1994)
- [6] 'Dynamics of flow-alignment in side-group liquid-crystalline polymers', R. M. Kannan, S. F. Rubin, J. A. Kornfield, & C. Boeffel, invited paper, *J. Rheology*, 38(5), 1609-1622 (1994)
- [5] 'Shear orientation in side-group liquid - crystalline polymers', R. M. Kannan, J. A. Kornfield, N. Schwenk, & C. Boeffel, *Advanced Materials*, Vol. 6, 214-216 (1994)

[4] 'Dynamics of each component in miscible blends of polyisoprene and polyvinylethylene', R. M. Kannan, B. H. Arendt, M. Zewail, & J. A. Kornfield, *Rheologica Acta*, Vol.33, 322-336 (1994)

[3] 'Rheology of side-group liquid-crystalline polymers:effect of isotropic-nematic transition and evidence of flow alignment', R. M. Kannan, J. A. Kornfield, N. Schwenk, & C. Boeffel, *Macromolecules*, Vol. 26, 2050 - 2056 (1993)

[2] 'Some thoughts on graduate education-A graduate student's perspective', R. M. Kannan, *Chemical Engineering Education*, Fall (1992)

[1] 'The third normal stress difference in entangled melts: quantitative stress-optical measurements in oscillatory shear', R. M. Kannan & J. A. Kornfield, *Rheologica Acta*, Vol.31, 535-544 (1992)

A1. PATENTS

(1) Dendrimer-containing particles for sustained release of compounds, R. Kannan, R. Iezzi, S. Kannan, (patent disclosed)- September 2007.

(2) 'Supercritical Fluid based process for preparing highly exfoliated nanocomposites', E. Gulari, G.K. Serhatkulu, R. M. Kannan, US patent awarded, 7,387,749, 2007.

(3) Method for aligning side-group liquid-crystalline polymers", J. A. Kornfield, R. M. Kannan, N. Schwenk, US patent, 5,313,320 (1994)

B. BOOK CHAPTERS

(1) Kannan, RM., Pillai, O., Kannan, S. Cellular interactions of nano drug delivery systems. In: Force microscopy in biology and medicine, Edited by B.P. Jena, Wiley & Co., June 2007

(2) Kannan, RM., Pillai, O., Kannan, S. Dendrimers and hyperbranched polymers for drug delivery. In: Biomedical applications of nanotechnology, Edited by V. Labhasetwar, D.L. Leslie-Pelecky John Wiley & Co., August 2007.

C. Selected Conference Proceedings

[15] 'Rheo-optical FTIR Spectroscopic investigation of the deformation behavior in thermoplastic polyurethanes', G. Hofmann and R. M. Kannan, Proceedings of the XIIth International Congress of Rheology, Volume 3, page 93,2000

[14]'Role of Branch architecture on the rheological and rheo-optical properties of hyper-branched polymer melts, S. Kharchenko, R.M. Kannan, et al., Proceedings of the XIIth International Congress of Rheology, Volume 1, page 307,2000

[13] 'Modeling the rheology of block copolymers by dissipative particle dynamics, Proceedings of the XIIth International Congress of Rheology, Volume 1, page 192, 2000

[12] 'Tailored dendritic nanostructures for targeted drug delivery', S. Kannan, P. Kolhe, R. M. Kannan, M. Lieh-lai, M. Glibatec, *Pediatric Research* 51 (4): 2784 Part 2 Suppl. S APR 2002

[11] 'Diffusion in microstructured Block copolymers', T.P. Lodge, R. M. Kannan, M. C. Dalvi, *Abs. Papers. of ACS*, 210: 47-POLY Part 2 AUG 20 1995.

[10] 'The interplay of molecular weight and mesophase order in the dynamics of side-group liquid-crystalline polymers, J. A. Kornfield, R. M. Kannan, C. Boeffel, *Abs. Papers. of ACS*, 210: 48-POLY Part 2 AUG 20 1995.

[9] 'Rheo-optical investigation of flow-induced alignment in intrinsically anisotropic polymer melts', R. M. Kannan and J. A. Kornfield, *Abs. Papers. of ACS*, 210: 49-POLY Part 2 AUG 20 1995.

[8] 'Dynamics of miscible blends and disordered block copolymers', J. A. Kornfield, R. M. Kannan, B. Arendt, K. Sietz, J. Roovers, *Abs. Papers. of ACS*, 208: 44-PMSE Part 2 AUG 21 1994

[7] 'Flipping the alignment of lamellar diblock copolymers- distinctive behavior of PEP-PEE and PS-PI diblocks', J. A. Kornfield, R. M. Kannan, and S. D. Smith, *ABSTR PAP AM CHEM S* 208: 136-PMSE Part 2 AUG 21 1994

[6] 'Flow-induced alignment of nematic and smectic side-group liquid-crystalline polymers', S. F. Rubin, R. M. Kannan, J. A. Kornfield, C. Boeffel, *ABSTR PAP AM CHEM S* 208: 181-PMSE Part 2 AUG 21 1994

[5] 'Dynamics of each component in the miscible blends of polyisoprene and polybutadiene', B. Arendt, R. Krishnamoorti, R. M. Kannan, J. A. Kornfield, J. Roovers, *ABSTR PAP AM CHEM S* 208: 255-PMSE Part 2 AUG 21 1994

[4] 'Linear viscoelasticity of side-chain liquid-crystalline polymers: Effect of molecular weight and nematic and smectic transitions', S. F. Rubin, R. M. Kannan, J. A. Kornfield, C. Boeffel, *ABSTR PAP AM CHEM S* 208: 263-PMSE Part 2 AUG 21 1994

[3] 'Comparison of the flow-induced alignment behavior of PER-PEE and PS-PI diblock copolymers', R. M. Kannan, J. A. Kornfield, and S. D. Smith, *ABSTR PAP AM CHEM S* 207: 223-POLY Part 2 MAR 13 1994

[2] 'Investigation of flow alignment of block copolymers using rheo-optical methods', R. M. Kannan and J. A. Kornfield, *ABSTR PAP AM CHEM S* 207: 357-POLY Part 2 MAR 13 1994

[1] 'Dynamics of microstructural alignment of block copolymers during shear', R. M. Kannan and J. A. Kornfield, *ABSTR PAP AM CHEM S* 206: 410-POLY Part 2 AUG 22 1993

D. Selected Invited talks at National and International Conferences and Universities

[15] ‘Dendrimer-based nanotherapeutics’, Plenary Speaker, Symposium on ‘Nanotechnology in Health Sciences’, American Association of Dental Research, Ann Arbor, MI , 12/08

[14] ‘Dendrimer-based nanodevice platforms’, Invited talks in the following departments at Wayne State University: Obstetrics and Gynecology (11/08), Perinatology Research Branch (9/08), Immunology and Microbiology (4/08), Institute of Environmental Health Sciences (3/07); Anatomy and Cell Biology (1/07), Pediatric Critical care(12/05), Children’s Hospital of Michigan-PET Center (3/08); pharmaceutical sciences (2006); Karmanos Cancer Institute (2003, 2007).

[13] ‘Designing dendrimer-based nanodevices for intracellular delivery through mechanistic understanding’, Invited Talk, American Physical Society, April 2007.

[12] ‘Emerging nanotechnologies for therapeutic applications’, Invited talk, AIChE Nanotechnology forum, November, 2006

[11] ‘nanoSEC: experiences from a start-up company’, Invited talk, University-Technology Commercialization conference, Dearborn, MI, 9/2006

[10] ‘Tailored dendrimer-based nanodevices for targeted drug delivery’, invited talk, ALZA Corporation, California, USA, 5/2005

[9] ‘Dendrimer-based bioconjugates as multifunctional targeted drug delivery systems’, Invited Plenary lecture, International Polymer Conjugates Conference, Jerusalem, Israel, 12/05

[8] ‘Dendrimer-based multi-functional drug delivery nanodevices: from chemistry to clinical applications’, invited talk, American Academy of Nanomedicine at National Academy of Sciences, 9/2006.

[7] ‘Dendrimer soft nanoparticles for drug delivery’, Invited talk, international particle technology conference, San Diego, 11/2006

[6] ‘Tailored dendritic nanodevices for targeted drug delivery: From chemistry to clinical applications’, Invited Talk, Polymer Science, University of Akron, April, 2004

[5] ‘Tailored dendritic nanostructures for targeted drug delivery’, Invited talk, US-German Polymer Symposium, Bayreuth, Germany, July 2003

[4] ‘Understanding the Nanoscale Response of Complex Polymers Using Rheo-optical FTIR spectroscopy: Role of Architecture and Tacticity’, Invited Talk, Case Western Reserve University, Macromolecular Science & Engg., March, 2003

[3] ‘Tailored dendritic nanostructures for targeted drug delivery’, Invited Talk, Case Western Reserve University, Pharmacology (School of Medicine), March, 2003

[2] ‘Tailored dendritic nanostructures for targeted drug delivery’, Invited Talk, Virginia Commonwealth University, Chemical Engineering, March, 2003.

[1] 'Talking to dancing, partying Polymers', Invited Talk, Johns Hopkins University, Chemical Engineering, November 2000

E. Sessions Chaired in National Meetings

- [1] APS Meeting, Division High Polymer Physics: Session: Diffusion, March, Los Angeles, 1998
- [2] Society of Rheology : Session: Experimental Methods, Columbus, October 1998
- [3] APS Meeting, Division of High Polymer Physics: Poster Session, Atlanta, March 1999
- [4] AIChE Meeting, Dallas, November 1999: Session: Transport at Fluid Interfaces
- [5] AIChE Meeting, Dallas, November 1999: Session: Diffusion in Polymers II
- [6] AIChE Meeting, Dallas, November 1999: Session: Adsorption in Thin Films
- [7] AIChE Meeting, Los Angeles, 2000, Session: Rheology of Colloidal Dispersions
- [8] Polymer Physics Gordon Conference, May 2000, Discussion Leader
- [9] AIChE Meeting, Reno, 2001, Structure and Properties of Polymers: Novel Characterization Techniques
- [10] AIChE Meeting, Indianapolis, 2002, Structure and Properties of Polymers II
- [11] APS Meeting, Austin, 2003, co-chair, "Dynamics and Glass Transitions"
- [12] APS Meeting, Austin, 2003, "Blends"
- [13] AIChE Meeting, San Francisco, November, 2003, 'Drug Delivery-I, Drug Delivery-II, Nanoscale Structure in Polymers: Interfaces-I, Nanoscale Structure in Polymers: Interfaces-II
- [14] AIChE meeting (2004)-four sessions on "Targeted drug delivery", Nanoscale Structure in Polymers: Interfaces-I, Nanoscale Structure in Polymers: Interfaces-II
- [15] Elected AIChE Area Chair – Area 8a- Polymers

IV SERVICE

A. WSU Committee Assignments

Tenure and Promotion Committee (2003-)

Curriculum Planning: Design, Ethics, and Professionalism, Engineering (1998)

AOC –department representative (1998-2000)

Shops Committee (2001- 2003)

Member of the CHE LAB improvement committee-Took part in the proposal writing, purchase and the set-up of the some of the new experiments in the ChE 3220 lab

B. Materials Science Program: Graduate Advisor : (2000 – current), **Development of the Inter-disciplinary materials science program curriculum, development of the graduate certificate program in ‘Nanotechnology and nanomedicine’.**

C. College of Engineering Representative on the Advisory Board for the Office of Teaching and Learning (OTL) at WSU.

D. Participated in NSF Review Panels :

NIRT Biomaterials Panel (2001):

NSF- CCLI (2001) NSF- CCLI (2002)

Ad hoc Member, National Cancer Insti. Special Emphasis Study Section ZCA1-SRRB-3(C1);