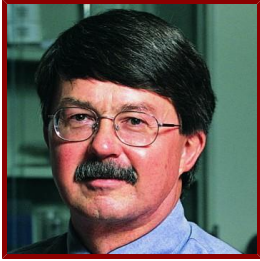


Stanford



Curtis Frank

W. M. Keck, Sr. Professor in Engineering and Professor, by court, of Materials Science and Engineering

Chemical Engineering

Bio

BIO

The properties of ultrathin polymer films are often different from their bulk counterparts. We use spin casting, Langmuir-Blodgett deposition, and surface grafting to fabricate ultrathin films in the range of 100 to 1000 Angstroms thick. Macromolecular amphiphiles are examined at the air-water interface by surface pressure, Brewster angle microscopy, and interfacial shear measurements and on solid substrates by atomic force microscopy, FTIR, and ellipsometry. A vapor-deposition-polymerization process has been developed for covalent grafting of poly(amino acids) from solid substrates. FTIR measurements permit study of secondary structures (right and left-handed alpha helices, parallel and anti-parallel beta sheets) as a function of temperature and environment.

A broadly interdisciplinary collaboration has been established with the Department of Ophthalmology in the Stanford School of Medicine. We have designed and synthesized a fully interpenetrating network of two different hydrogel materials that have properties consistent with application as a substitute for the human cornea: high water swellability up to 85%, tensile strength comparable to the cornea, high glucose permeability comparable to the cornea, and sufficient tear strength to permit suturing. We have developed a technique for surface modification with adhesion peptides that allows binding of collagen and subsequent growth of epithelial cells. Broad questions on the relationships among molecular structure, processing protocol, and biomedical device application are being pursued.

ACADEMIC APPOINTMENTS

- Professor, Chemical Engineering
- Professor (By courtesy), Materials Science and Engineering
- Member, Bio-X
- Member, Cardiovascular Institute

HONORS AND AWARDS

- Fellow, American Physical Society
- CMA Stine Award, American Institute of Chemical Engineers
- Principal Investigator, National Science Foundation

PROFESSIONAL EDUCATION

- PhD, University of Illinois (1972)

Teaching

COURSES

2020-21

- Graduate Practical Training: CHEMENG 299 (Sum)
- Polymer Science and Engineering: CHEMENG 160, CHEMENG 260 (Aut)
- Special Topics in Polymer Physics and Molecular Assemblies: CHEMENG 507 (Aut, Win, Spr, Sum)
- The Chemical Engineering Profession: CHEMENG 10 (Win)

2019-20

- Graduate Practical Training: CHEMENG 299 (Sum)
- Interfacial Engineering of Soft Matter: CHEMENG 460 (Aut)
- Polymer Science and Engineering: CHEMENG 160, CHEMENG 260 (Spr)
- Special Topics in Polymer Physics and Molecular Assemblies: CHEMENG 507 (Aut, Win, Spr, Sum)
- The Chemical Engineering Profession: CHEMENG 10 (Aut)

2018-19

- An Exploration of Art Materials: The Intersection of Art and Science: CHEMENG 12SC (Sum)
- Graduate Practical Training: CHEMENG 299 (Sum)
- Interfacial Engineering: CHEMENG 460 (Spr)
- Polymers for Clean Energy and Water: CHEMENG 162, CHEMENG 262 (Aut)
- Special Topics in Polymer Physics and Molecular Assemblies: CHEMENG 507 (Aut, Win, Spr, Sum)
- The Chemical Engineering Profession: CHEMENG 10 (Aut)

2017-18

- An Exploration of Art Materials: The Intersection of Art and Science: CHEMENG 12SC (Sum)
- Special Topics in Polymer Physics and Molecular Assemblies: CHEMENG 507 (Aut, Win, Spr, Sum)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Da Yoon No

Master's Program Advisor

Adam Bogart, Mason Hermann, Thabata Maciel, Zhimin Xie

Publications

PUBLICATIONS

- **A General Approach for Monolayer Adsorption of High Weight Loadings of Uniform Nanocrystals on Oxide Supports.** *Angewandte Chemie (International ed. in English)*
Kao, K., Yang, A., Huang, W., Zhou, C., Goodman, E. D., Holm, A., Frank, C. W., Cargnello, M.
2021
- **Structure-property relations of amphiphilic poly(furfuryl glycidyl ether)-block-poly(ethylene glycol) macromonomers at the air-water interface** *POLYMER CHEMISTRY*
Adatia, K. K., Holm, A., Southan, A., Frank, C. W., Tovar, G. M.
2020; 11 (35): 5659–68
- **Interface Characteristics of Neat Melts and Binary Mixtures of Polyethylenes from Atomistic Molecular Dynamics Simulations.** *Polymers*
Lee, S., Frank, C. W., Yoon, D. Y.
2020; 12 (5)
- **Nanoscale Spatial Distribution of Supported Nanoparticles Controls Activity and Stability in Powder Catalysts for CO Oxidation and Photocatalytic H₂ Evolution.** *Journal of the American Chemical Society*

- Holm, A., Goodman, E. D., Stenlid, J. H., Aitbekova, A., Zelaya, R., Diroll, B. T., Johnston-Peck, A. C., Kao, K. C., Frank, C. W., Pettersson, L. G., Cargnello, M. 2020
- **Nanoscale Spatial Distribution of Supported Nanoparticles Controls Activity and Stability in Powder Catalysts for CO Oxidation and Photocatalytic H₂ Evolution.** *Journal of the American Chemical Society*
Holm, A., Goodman, E. D., Stenlid, J. H., Aitbekova, A., Zelaya, R., Diroll, B. T., Johnston-Peck, A. C., Kao, K. C., Frank, C. W., Pettersson, L. G., Cargnello, M. 2020; 142 (34): 14481–94
 - **Polyimide-PEG Segmented Block Copolymer Membranes with High Proton Conductivity by Improving Bicontinuous Nanostructure of Ionic Liquid-Doped Films** *MACROMOLECULAR CHEMISTRY AND PHYSICS*
Woo, E., Coletta, E., Holm, A., Mun, J., Toney, M. F., Yoon, D. Y., Frank, C. W. 2019; 220 (9)
 - **General Self-Assembly Method for Deposition of Graphene Oxide into Uniform Close-Packed Monolayer Films**
Holm, A., Kunz, L., Riscoe, A. R., Kao, K., Cargnello, M., Frank, C. W. AMER CHEMICAL SOC.2019: 4460–70
 - **Photocatalytic CO₂ reduction using hybrid nanoporous catalysts**
Kao, K., Riscoe, A., Yang, A., Huang, W., Holm, A., Frank, C., Cargnello, M. AMER CHEMICAL SOC.2019
 - **Human iPS derived progenitors bioengineered into liver organoids using an inverted colloidal crystal poly (ethylene glycol) scaffold** *BIOMATERIALS*
Ng, S., Saeb-Parsy, K., Blackford, S. I., Segal, J. M., Serra, M., Horcas-Lopez, M., No, D., Mastoridis, S., Jassem, W., Frank, C. W., Cho, N., Nakauchi, H., Glenn, et al 2018; 182: 299–311
 - **Synthesis, characterization and light-induced spatial charge separation in Janus graphene oxide**
Holm, A., Park, J., Goodman, E., Zhang, J., Sinclair, R., Cargnello, M., Frank, C. AMER CHEMICAL SOC.2018
 - **Langmuir-Blodgett deposition of graphene oxide - identifying Marangoni flow as a process that fundamentally limits deposition control**
Holm, A., Wrasman, C., Riscoe, A., Cargnello, M., Frank, C. AMER CHEMICAL SOC.2018
 - **Langmuir-Blodgett Deposition of Graphene Oxide-Identifying Marangoni Flow as a Process that Fundamentally Limits Deposition Control.** *Langmuir : the ACS journal of surfaces and colloids*
Holm, A., Wrasman, C. J., Kao, K., Riscoe, A. R., Cargnello, M., Frank, C. W. 2018
 - **Human iPS derived progenitors bioengineered into liver organoids using an inverted colloidal crystal poly (ethylene glycol) scaffold.** *Biomaterials*
Ng, S. S., Saeb-Parsy, K., Blackford, S. J., Segal, J. M., Serra, M. P., Horcas-Lopez, M., No, D. Y., Mastoridis, S., Jassem, W., Frank, C. W., Cho, N. J., Nakauchi, H., Glenn, et al 2018; 182: 299–311
 - **A lignin-epoxy resin derived from biomass as an alternative to formaldehyde-based wood adhesives** *GREEN CHEMISTRY*
Li, R., Gutierrez, J., Chung, Y., Frank, C. W., Billington, S. L., Sattely, E. S. 2018; 20 (7): 1459–66
 - **Synthesis, Characterization, and Light-Induced Spatial Charge Separation in Janus Graphene Oxide** *CHEMISTRY OF MATERIALS*
Holm, A., Park, J., Goodman, E. D., Zhang, J., Sinclair, R., Cargnello, M., Frank, C. W. 2018; 30 (6): 2084–92
 - **Long-term culture of human liver tissue with advanced hepatic functions.** *JCI insight*
Ng, S. S., Xiong, A., Nguyen, K., Masek, M., No, D. Y., Elazar, M., Shteyer, E., Winters, M. A., Voedisch, A., Shaw, K., Rashid, S. T., Frank, C. W., Cho, et al 2017; 2 (11)
 - **Interfacial and topological effects on the glass transition in free-standing polystyrene films** *JOURNAL OF CHEMICAL PHYSICS*
Lyulin, A. V., Balabaev, N. K., Baljon, A. R., Mendoza, G., Frank, C. W., Yoon, D. Y. 2017; 146 (20)
 - **Interface characteristics of polystyrene melts in free-standing thin films and on graphite surface from molecular dynamics simulations** *POLYMER*

Lee, S., Lyulin, A. V., Frank, C. W., Yoon, D. Y.
2017; 116: 540-548

- **Microscopic structures in ion exchange fuel cell membranes**
Lu, J., Spakowitz, A., Frank, C., Toney, M.
AMER CHEMICAL SOC.2017
- **Enhanced ionic conductivity of peg-containing polyimide/ionic liquid membrane upon thermal annealing**
Frank, C., Woo, E., Lu, J., Coletta, E., Mun, J., Spakowitz, A., Yoon, D., Toney, M.
AMER CHEMICAL SOC.2017
- **Self-assembly of cholesterol tethered within hydrogel networks** *POLYMER*
Engberg, K., Waters, D. J., Kelmanovich, S., Parke-Houben, R., Hartmann, L., Toney, M. F., Frank, C. W.
2016; 84: 371-382
- **Biocompatibility of poly(ethylene glycol) and poly(acrylic acid) interpenetrating network hydrogel by intrastromal implantation in rabbit cornea** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Zheng, L. L., Vanchinathan, V., Dalal, R., Noolandi, J., Waters, D. J., Hartmann, L., Cochran, J. R., Frank, C. W., Yu, C. Q., Ta, C. N.
2015; 103 (10): 3157-3165
- **Biocompatibility of poly(ethylene glycol) and poly(acrylic acid) interpenetrating network hydrogel by intrastromal implantation in rabbit cornea.** *Journal of biomedical materials research. Part A*
Zheng, L. L., Vanchinathan, V., Dalal, R., Noolandi, J., Waters, D. J., Hartmann, L., Cochran, J. R., Frank, C. W., Yu, C. Q., Ta, C. N.
2015; 103 (10): 3157-3165
- **Supramolecular motifs in dynamic covalent PEG-hemiaminal organogels** *NATURE COMMUNICATIONS*
Fox, C. H., Ter Hurne, G. M., Wojtecki, R. J., Jones, G. O., Horn, H. W., Meijer, E. W., Frank, C. W., Hedrick, J. L., Garcia, J. M.
2015; 6
- **Scientific Delirium Madness** *LEONARDO*
Knight, M. H., Jacobs, C. D., Frank, C. W., Sternberg, D., Petrenko, S., Tromble, M., Sumner, D., Sundaralingam, P.
2015; 48 (3): 219-225
- **Tunable mesoscale-structured self-assembled hydrogels synthesized by organocatalytic ring-opening polymerization** *POLYMER*
Fox, C. H., Engler, A. C., Toney, M. F., Hedrick, J. L., Frank, C. W.
2015; 65: 93-104
- **A Semi-Interpenetrating Network Approach for Dimensionally Stabilizing Highly-Charged Anion Exchange Membranes for Alkaline Fuel Cells** *CHEMSUSCHEM*
He, S. S., Strickler, A. L., Frank, C. W.
2015; 8 (8): 1472-1483
- **Effects of Aromatic Regularity on the Structure and Conductivity of Polyimide-Poly(ethylene glycol) Materials Doped with Ionic Liquid** *JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS*
Coletta, E., Toney, M. F., Frank, C. W.
2015; 53 (7): 509-521
- **Organocatalytic Ring-Opening Polymerization of Trimethylene Carbonate To Yield a Biodegradable Polycarbonate** *JOURNAL OF CHEMICAL EDUCATION*
Chan, J. M., Zhang, X., Brennan, M. K., Sardon, H., Engler, A. C., Fox, C. H., Frank, C. W., Waymouth, R. M., Hedrick, J. L.
2015; 92 (4): 708-713
- **Influences of liquid electrolyte and polyimide identity on the structure and conductivity of polyimide-poly(ethylene glycol) materials** *JOURNAL OF APPLIED POLYMER SCIENCE*
Coletta, E., Toney, M. F., Frank, C. W.
2015; 132 (12)
- **Phosphatidylinositol 4,5-Bisphosphate Is an HCV NS5A Ligand and Mediates Replication of the Viral Genome.** *Gastroenterology*
Cho, N., Lee, C., Pang, P. S., Pham, E. A., Fram, B., Nguyen, K., Xiong, A., Sklan, E. H., Elazar, M., Koytak, E. S., Kersten, C., Kanazawa, K. K., Frank, et al
2015; 148 (3): 616-625

- **A Simple Method for Encapsulating Single Cells in Alginate Microspheres Allows for Direct PCR and Whole Genome Amplification** *PLOS ONE*
Bigdeli, S., Dettloff, R. O., Frank, C. W., Davis, R. W., Crosby, L. D.
2015; 10 (2)
- **Interpenetrating polymer network hydrogel scaffolds for artificial cornea periphery.** *Journal of materials science. Materials in medicine*
Parke-Houben, R., Fox, C. H., Zheng, L. L., Waters, D. J., Cochran, J. R., Ta, C. N., Frank, C. W.
2015; 26 (2): 107-?
- **Interpenetrating polymer network hydrogel scaffolds for artificial cornea periphery.** *Journal of materials science. Materials in medicine*
Parke-Houben, R., Fox, C. H., Zheng, L. L., Waters, D. J., Cochran, J. R., Ta, C. N., Frank, C. W.
2015; 26 (2): 5442-?
- **Supramolecular motifs in dynamic covalent PEG-hemiaminal organogels.** *Nature communications*
Fox, C. H., Ter Hurne, G. M., Wojtecki, R. J., Jones, G. O., Horn, H. W., Meijer, E. W., Frank, C. W., Hedrick, J. L., García, J. M.
2015; 6: 7417-?
- **Chemoresponsive surface-tethered polypeptide brushes based on switchable secondary conformations** *RSC ADVANCES*
Yang, C., Wang, Y., Frank, C. W., Chang, Y.
2015; 5 (105): 86113-86119
- **Modular composite hydrogels from cholesterol-functionalized polycarbonates for antimicrobial applications** *JOURNAL OF MATERIALS CHEMISTRY B*
Lee, A. L., Venkataraman, S., Fox, C. H., Coady, D. J., Frank, C. W., Hedrick, J. L., Yang, Y. Y.
2015; 3 (34): 6953-6963
- **Impacts of polymer-polymer interactions and interfaces on the structure and conductivity of PEG-containing polyimides doped with ionic liquid** *POLYMER*
Coletta, E., Toney, M. Y., Frank, C. W.
2014; 55 (26): 6883-6895
- **Increasing Cell Homogeneity of Semicrystalline, Biodegradable Polymer Foams With a Narrow Processing Window via Rapid Quenching** *POLYMER ENGINEERING AND SCIENCE*
Wright, Z. C., Frank, C. W.
2014; 54 (12): 2877-2886
- **Comparison of anhydrous and monohydrated forms of otrotic acid as crystal nucleating agents for poly(3-hydroxybutyrate-co-3-hydroxyvalerate)** *POLYMER*
Tsui, A., Frank, C. W.
2014; 55 (24): 6364-6372
- **Prediction of Gas Solubility in Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) Melt to Inform Process Design and Resulting Foam Microstructure** *POLYMER ENGINEERING AND SCIENCE*
Tsui, A., Wright, Z., Frank, C. W.
2014; 54 (11): 2683-2695
- **Facilitating hydroxide transport in anion exchange membranes via hydrophilic grafts** *JOURNAL OF MATERIALS CHEMISTRY A*
He, S. S., Frank, C. W.
2014; 2 (39): 16489-16497
- **Impact of Processing Temperature and Composition on Foaming of Biodegradable Poly(hydroxyalkanoate) Blends** *INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH*
Tsui, A., Frank, C. W.
2014; 53 (41): 15896-15908
- **Small-angle X-ray scattering of self-assembled hydrogels in topologically constrained systems**
Fox, C. H., Frank, C. W., Hedrick, J. L., Engler, A. C.
AMER CHEMICAL SOC.2014
- **Directed Axonal Outgrowth Using a Propagating Gradient of IGF-1.** *Advanced materials*
Lee, W., Frank, C. W., Park, J.
2014; 26 (29): 4936-4940

- **Topological constraints in interpenetrating polymer network hydrogels**
Frank, C.
AMER CHEMICAL SOC.2014
- **Vesicle Adhesion and Rupture on Silicon Oxide: Influence of Freeze-Thaw Pretreatment** *LANGMUIR*
Jackman, J. A., Zhao, Z., Zhdanov, V. P., Frank, C. W., Cho, N.
2014; 30 (8): 2152-2160
- **Grafting of Cross-Linked Hydrogel Networks to Titanium Surfaces** *ACS APPLIED MATERIALS & INTERFACES*
Muir, B. V., Myung, D., Knoll, W., Frank, C. W.
2014; 6 (2): 958-966
- **Enhanced particle removal using viscoelastic fluids** *JOURNAL OF RHEOLOGY*
Walker, T. W., Hsu, T. T., FitzGibbon, S., Frank, C. W., Mui, D. S., Zhu, J., Mendiratta, A., Fuller, G. G.
2014; 58 (1): 63-88
- **Directed axonal outgrowth using a propagating gradient of IGF-1** *ADVANCED MATERIALS*
Lee, W., Frank, C. W., Park, J.
2014; 26: 4936-4940
- **Instabilities and elastic recoil of the two-fluid circular hydraulic jump** *EXPERIMENTS IN FLUIDS*
Hsu, T. T., Walker, T. W., Frank, C. W., Fuller, G. G.
2014; 55 (1)
- **A Renewable Lignin-Lactide Copolymer and Application in Biobased Composites** *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*
Chung, Y., Olsson, J. V., Li, R. J., Frank, C. W., Waymouth, R. M., Billington, S. L., Sattely, E. S.
2013; 1 (10): 1231-1238
- **Comparison of Extruded and Sonicated Vesicles for Planar Bilayer Self-Assembly** *MATERIALS*
Cho, N., Hwang, L. Y., Solandt, J. J., Frank, C. W.
2013; 6 (8): 3294-3308
- **Antibody conjugated supported lipid bilayer for capturing and purification of viable tumor cells in blood for subsequent cell culture** *BIOMATERIALS*
Wu, J., Tseng, P., Tsai, W., Liao, M., Lu, S., Frank, C. W., Chen, J., Wu, H., Chang, Y.
2013; 34 (21): 5191-5199
- **Chondro-ocular graft transfer:: An alternative to allograft transplantation?**
Myung, D., Ta, C., Yung, E., Frank, C.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2013
- **In vivo biocompatibility of two PEG/PAA interpenetrating polymer networks as corneal inlays following deep stromal pocket implantation** *JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE*
Tan, X. W., Hartman, L., Tan, K. P., Poh, R., Myung, D., Zheng, L. L., Waters, D., Noolandi, J., Beuerman, R. W., Frank, C. W., Ta, C. N., Tan, D. T., Mehta, et al
2013; 24 (4): 967-977
- **Biodegradable Polyesters from Renewable Resources** *ANNUAL REVIEW OF CHEMICAL AND BIOMOLECULAR ENGINEERING, VOL 4*
Tsui, A., Wright, Z. C., Frank, C. W.
2013; 4: 143-?
- **Surface Modification of High-Strength Interpenetrating Network Hydrogels for Biomedical Device Applications** *HANDBOOK OF BIOFUNCTIONAL SURFACES*
Myung, D., Kourtis, L., Noolandi, J., Cochran, J., Ta, C. N., Frank, C. W., Knoll, W.
2013: 407-46
- **Comparison of Extruded and Sonicated Vesicles for Planar Bilayer Self-Assembly.** *Materials (Basel, Switzerland)*
Cho, N. J., Hwang, L. Y., Solandt, J. J., Frank, C. W.
2013; 6 (8): 3294-3308
- **Biodegradable Films and Foam of Poly(3-Hydroxybutyrate-co-3-hydroxyvalerate) Blended with Silk Fibroin** *244th National Fall Meeting of the American-Chemical-Society (ACS)*

- Tsui, A., Hu, X., Kaplan, D. L., Frank, C. W.
AMER CHEMICAL SOC.2013: 251-279
- **Characterizing the effects of ambient aging on the mechanical and physical properties of two commercially available bacterial thermoplastics** *3rd International Conference on Biodegradable and Biobased Polymers (BIOPOL)*
Srubar, W. V., Wright, Z. C., Tsui, A., Michel, A. T., Billington, S. L., Frank, C. W.
ELSEVIER SCI LTD.2012: 1922-29
 - **Role of shear-thinning on the dynamics of rinsing flow by an impinging jet** *PHYSICS OF FLUIDS*
Walker, T. W., Hsu, T. T., Frank, C. W., Fuller, G. G.
2012; 24 (9)
 - **Competitive swelling/deswelling in a dual-responsive interpenetrating network hydrogel**
Kelmanovich, S., Toney, M., Frank, C. W.
AMER CHEMICAL SOC.2012
 - **Extruded foams from microbial poly(3-hydroxybutyrate-co-3-hydroxyvalerate) and its blends with cellulose acetate butyrate** *POLYMER ENGINEERING AND SCIENCE*
Liao, Q., Tsui, A., Billington, S., Frank, C. W.
2012; 52 (7): 1495-1508
 - **Modeling the kinetics of water transport and hydroexpansion in a lignocellulose-reinforced bacterial copolyester** *POLYMER*
Srubar, W. V., Frank, C. W., Billington, S. L.
2012; 53 (11): 2152-2161
 - **Mechanisms and impact of fiber-matrix compatibilization techniques on the material characterization of PHBV/oak wood flour engineered biobased composites** *COMPOSITES SCIENCE AND TECHNOLOGY*
Srubar, W. V., Pilla, S., Wright, Z. C., Ryan, C. A., Greene, J. P., Frank, C. W., Billington, S. L.
2012; 72 (6): 708-715
 - **Using QCM-D and ellipsometry to determine the orientation and state of hydration of antibodies adsorbed on a hydrophobic surface**
Wiseman, M., Frank, C.
AMER CHEMICAL SOC.2012
 - **Antibody Adsorption and Orientation on Hydrophobic Surfaces** *LANGMUIR*
Wiseman, M. E., Frank, C. W.
2012; 28 (3): 1765-1774
 - **Meso-ordered soft hydrogels** *SOFT MATTER*
Claesson, M., Engberg, K., Frank, C. W., Andersson, M.
2012; 8 (31): 8149-8156
 - **Competitive swelling forces and interpolymer complexation in pH- and temperature-sensitive interpenetrating network hydrogels** *SOFT MATTER*
Kelmanovich, S. G., Parke-Houben, R., Frank, C. W.
2012; 8 (31): 8137-8148
 - **Diffusion of Protein through the Human Cornea** *OPHTHALMIC RESEARCH*
Charalel, R. A., Engberg, K., Noolandi, J., Cochran, J. R., Frank, C., Ta, C. N.
2012; 48 (1): 50-55
 - **Star polymers with random number of temperature sensitive arms and crosslinked poly(EGDMA)-core and their application to drug delivery** *REACTIVE & FUNCTIONAL POLYMERS*
Alvarez-Sanchez, J., Licea-Claverie, A., Cornejo-Bravo, J. M., Frank, C. W.
2011; 71 (11): 1077-1088
 - **Protein diffusion in photopolymerized poly(ethylene glycol) hydrogel networks** *BIOMEDICAL MATERIALS*
Engberg, K., Frank, C. W.
2011; 6 (5)
 - **Structure and Mechanism of Strength Enhancement in Interpenetrating Polymer Network Hydrogels** *MACROMOLECULES*
Waters, D. J., Engberg, K., Parke-Houben, R., Ta, C. N., Jackson, A. J., Toney, M. F., Frank, C. W.

2011; 44 (14): 5776-5787

- **Toward the development of an artificial cornea: improved stability of interpenetrating polymer networks.** *Journal of biomedical materials research. Part B, Applied biomaterials*
Hartmann, L., Watanabe, K., Zheng, L. L., Kim, C., Beck, S. E., Huie, P., Noolandi, J., Cochran, J. R., Ta, C. N., Frank, C. W.
2011; 98 (1): 8-17
- **Toward the development of an artificial cornea: Improved stability of interpenetrating polymer networks** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS*
Hartmann, L., Watanabe, K., Zheng, L. L., Kim, C., Beck, S. E., Huie, P., Noolandi, J., Cochran, J. R., Ta, C. N., Frank, C. W.
2011; 98B (1): 8-17
- **pH-Driven Assembly of Various Supported Lipid Platforms: A Comparative Study on Silicon Oxide and Titanium Oxide** *LANGMUIR*
Cho, N., Jackman, J. A., Liu, M., Frank, C. W.
2011; 27 (7): 3739-3748
- **Role of fluid elasticity on the dynamics of rinsing flow by an impinging jet** *PHYSICS OF FLUIDS*
Hsu, T. T., Walker, T. W., Frank, C. W., Fuller, G. G.
2011; 23 (3)
- **Anaerobic biodegradation of the microbial copolymer poly(3-hydroxybutyrate-co-3-hydroxyhexanoate): Effects of comonomer content, processing history, and semi-crystalline morphology** *POLYMER*
Morse, M., Liao, Q., Criddle, C. S., Frank, C. W.
2011; 52 (2): 547-556
- **Interfacial Biocatalysis on Charged and Immobilized Substrates: The Roles of Enzyme and Substrate Surface Charge** *LANGMUIR*
Feller, B. E., Kellis, J. T., Cascao-Pereira, L. G., Robertson, C. R., Frank, C. W.
2011; 27 (1): 250-263
- **The Role of Electrostatic Interactions in Protease Surface Diffusion and the Consequence for Interfacial Biocatalysis** *LANGMUIR*
Feller, B. E., Kellis, J. T., Cascao-Pereira, L. G., Robertson, C. R., Frank, C. W.
2010; 26 (24): 18916-18925
- **Targeting of Cancer Cells Using Quantum Dot-Polypeptide Hybrid Assemblies That Function as Molecular Imaging Agents and Carrier Systems** *ADVANCED FUNCTIONAL MATERIALS*
Atmaja, B., Lui, B. H., Hu, Y., Beck, S. E., Frank, C. W., Cochran, J. R.
2010; 20 (23): 4091-4097
- **Hydrophobic nanoparticles improve permeability of cell-encapsulating poly(ethylene glycol) hydrogels while maintaining patternability** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Lee, W., Cho, N., Xiong, A., Glenn, J. S., Frank, C. W.
2010; 107 (48): 20709-20714
- **Vesicle Adsorption on Mesoporous Silica and Titania** *LANGMUIR*
Claesson, M., Cho, N., Frank, C. W., Andersson, M.
2010; 26 (22): 16630-16633
- **Fabrication of a Planar Zwitterionic Lipid Bilayer on Titanium Oxide** *LANGMUIR*
Cho, N., Frank, C. W.
2010; 26 (20): 15706-15710
- **Morphology of Photopolymerized End-Linked Poly(ethylene glycol) Hydrogels by Small-Angle X-ray Scattering** *MACROMOLECULES*
Waters, D. J., Engberg, K., Parke-Houben, R., Hartmann, L., Ta, C. N., Toney, M. F., Frank, C. W.
2010; 43 (16): 6861-6870
- **Type I Collagen-Functionalized Supported Lipid Bilayer as a Cell Culture Platform** *BIOMACROMOLECULES*
Huang, C., Cho, N., Hsu, C., Tseng, P., Frank, C. W., Chang, Y.
2010; 11 (5): 1231-1240
- **Silica xerogel/aerogel-supported lipid bilayers: Consequences of surface corrugation** *BIOCHIMICA ET BIOPHYSICA ACTA-BIOMEMBRANES*
Goksu, E. I., Hoopes, M. I., Nellis, B. A., Xing, C., Faller, R., Frank, C. W., Risbud, S. H., Satcher, J. H., Longo, M. L.

2010; 1798 (4): 719-729

- **Surface-Initiated Vapor Deposition Polymerization of Poly (γ -benzyl-L-glutamate): Optimization and Mechanistic Studies** *LANGMUIR*
Zheng, W., Frank, C. W.
2010; 26 (6): 3929-3941
- **Interfacial Binding Dynamics of Bee Venom Phospholipase A(2) Investigated by Dynamic Light Scattering and Quartz Crystal Microbalance** *LANGMUIR*
Jackman, J. A., Cho, N., Duran, R. S., Frank, C. W.
2010; 26 (6): 4103-4112
- **Identification of a Class of HCV Inhibitors Directed Against the Nonstructural Protein NS4B** *SCIENCE TRANSLATIONAL MEDICINE*
Cho, N., Dvory-Sobol, H., Lee, C., Cho, S., Bryson, P., Masek, M., Elazar, M., Frank, C. W., Glenn, J. S.
2010; 2 (15)
- **Quartz crystal microbalance with dissipation monitoring of supported lipid bilayers on various substrates** *NATURE PROTOCOLS*
Cho, N., Frank, C. W., Kasemo, B., Hook, F.
2010; 5 (6): 1096-1106
- **Targeting of Cancer Cells Using Quantum Dot-Polypeptide Hybrid Assemblies that Function as Molecular Imaging Agents and Carrier Systems.** *Advanced functional materials*
Atmaja, B., Lui, B. H., Hu, Y., Beck, S. E., Frank, C. W., Cochran, J. R.
2010; 20 (23): 4091-97
- **Polymer-Tethered Bimolecular Lipid Membranes** *POLYMER MEMBRANES/BIOMEMBRANES*
Knoll, W., Bender, K., Foerch, R., Frank, C., Goetz, H., Heibel, C., Jenkins, T., Jonas, U., Kibrom, A., Kuegler, R., Naumann, C., Naumann, R., Reisinger, et al
2010; 224: 87-111
- **Morphology of Photopolymerized End-linked Poly(ethylene glycol) Hydrogels by Small Angle X-ray Scattering.** *Macromolecules*
Waters, D. J., Engberg, K., Parke-Houben, R., Hartmann, L., Ta, C. N., Toney, M. F., Frank, C. W.
2010; 43 (16): 6861-70
- **Exploring the versatility of hydrogels derived from living organocatalytic ring-opening polymerization** *SOFT MATTER*
Nederberg, F., Trang, V., Pratt, R. C., Kim, S., Colson, J., Nelson, A., Frank, C. W., Hedrick, J. L., Dubois, P., Mespouille, L.
2010; 6 (9): 2006-2012
- **Hindered diffusion of oligosaccharides in high strength poly(ethylene glycol)/poly(acrylic acid) interpenetrating network hydrogels: Hydrodynamic vs. obstruction models** *POLYMER*
Waters, D. J., Frank, C. W.
2009; 50 (26): 6331-6339
- **The reliable targeting of specific drug release profiles by integrating arrays of different albumin-encapsulated microsphere types** *BIOMATERIALS*
Lee, W., Wiseman, M. E., Cho, N., Glenn, J. S., Frank, C. W.
2009; 30 (34): 6648-6654
- **Biocompatibility of poly(ethylene glycol)/poly(acrylic acid) interpenetrating polymer network hydrogel particles in RAW 264.7 macrophage and MG-63 osteoblast cell lines** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Yim, E. S., Zhao, B., Myung, D., Kourtis, L. C., Frank, C. W., Carter, D., Smith, R. L., Goodman, S. B.
2009; 91A (3): 894-902
- **Mechanism of an Amphipathic α -Helical Peptide's Antiviral Activity Involves Size-Dependent Virus Particle Lysis** *ACS CHEMICAL BIOLOGY*
Cho, N., Dvory-Sobol, H., Xiong, A., Cho, S., Frank, C. W., Glenn, J. S.
2009; 4 (12): 1061-1067
- **Biocompatibility of poly(ethylene glycol)/poly(acrylic acid) interpenetrating polymer network hydrogel particles in RAW 264.7 macrophage and MG-63 osteoblast cell lines.** *Journal of biomedical materials research. Part A*
Yim, E. S., Zhao, B., Myung, D., Kourtis, L. C., Frank, C. W., Carter, D., Smith, R. L., Goodman, S. B.
2009; 91 (3): 894-902
- **Melt viscoelasticity of biodegradable poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) copolymers** *POLYMER*
Liao, Q., Noda, I., Frank, C. W.
2009; 50 (25): 6139-6148

- **Antibody Binding to a Tethered Vesicle Assembly Using QCM-D** *ANALYTICAL CHEMISTRY*
Patel, A. R., Kanazawa, K. K., Frank, C. W.
2009; 81 (15): 6021-6029
- **Bioactive interpenetrating polymer network hydrogels that support corneal epithelial wound healing.** *Journal of biomedical materials research. Part A*
Myung, D., Farooqui, N., Zheng, L. L., Koh, W., Gupta, S., Bakri, A., Noolandi, J., Cochran, J. R., Frank, C. W., Ta, C. N.
2009; 90 (1): 70-81
- **Bioactive interpenetrating polymer network hydrogels that support corneal epithelial wound healing** *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*
Myung, D., Farooqui, N., Zheng, L. L., Koh, W., Gupta, S., Bakri, A., Noolandi, J., Cochran, J. R., Frank, C. W., Ta, C. N.
2009; 90A (1): 70-81
- **Alpha-Helical Peptide-Induced Vesicle Rupture Revealing New Insight into the Vesicle Fusion Process As Monitored in Situ by Quartz Crystal Microbalance-Dissipation and Reflectometry** *ANALYTICAL CHEMISTRY*
Cho, N., Wang, G., Edvardsson, M., Glenn, J. S., Hook, F., Frank, C. W.
2009; 81 (12): 4752-4761
- **Defect Generation Surrounding Nanoparticles in a Cross-Linked Hydrogel Network** *LANGMUIR*
Yanagioka, M., Frank, C. W.
2009; 25 (10): 5927-5939
- **Influence of Interfacial Layer Between Nanoparticles and Polymeric Matrix on Viscoelastic Properties of Hydrogel Nanocomposites** *MACROMOLECULES*
Yanagioka, M., Toney, M. F., Frank, C. W.
2009; 42 (4): 1331-1343
- **Viral infection of human progenitor and liver-derived cells encapsulated in three-dimensional PEG-based hydrogel** *BIOMEDICAL MATERIALS*
Cho, N., Elazar, M., Xiong, A., Lee, W., Chiao, E., Baker, J., Frank, C. W., Glenn, J. S.
2009; 4 (1)
- **Supramolecular Assembly of Block Copolypeptides with Semiconductor Nanocrystals** *LANGMUIR*
Atmaja, B., Cha, J. N., Marshall, A., Frank, C. W.
2009; 25 (2): 707-715
- **Adsorbed alpha-Helical Diblock Copolypeptides: Molecular Organization, Structural Properties, and Interactions** *LANGMUIR*
Atmaja, B., Cha, J. N., Frank, C. W.
2009; 25 (2): 865-872
- **The Use of the RAFT-Technique for the Preparation of Temperature/pH Sensitive Polymers in Different Architectures** *1st US-Mexican Symposium on Advances in Polymer Science*
Licea-Claverie, A., Alvarez-Sanchez, J., Picos-Corrales, L. A., Obeso-Vera, C., Flores, M. C., Munuel Cornejo-Bravo, J., Hawker, C. J., Frank, C. W.
WILEY-VCH VERLAG GMBH.2009: 56-66
- **Hindered Diffusion of Oligosaccharides in High Strength Poly(ethylene glycol)/Poly(acrylic acid) Interpenetrating Network Hydrogels: Hydrodynamic Versus Obstruction Models.** *Polymer*
Waters, D. J., Frank, C. W.
2009; 50 (26): 6331-39
- **Biomimetic Lipoglycopolymers Membranes: Photochemical Surface Attachment of Supramolecular Architectures with Defined Orientation** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Schiller, S. M., Reisinger-Friebis, A., Goetz, H., Hawker, C. J., Frank, C. W., Naumann, R., Knoll, W.
2009; 48 (37): 6896-6899
- **Preparation and Characterization of Glycoacrylate-Based Polymer-Tethered Lipid Bilayers on Benzophenone-Modified Substrates** *LANGMUIR*
Hwang, L. Y., Goetz, H., Knoll, W., Hawker, C. J., Frank, C. W.
2008; 24 (24): 14088-14098
- **Enzymatic Proteolysis of a Surface-Bound alpha-Helical Polypeptide** *LANGMUIR*
Hardesty, J. O., Cascao-Pereira, L., Kellis, J. T., Robertson, C. R., Frank, C. W.
2008; 24 (24): 13944-13956

- **Fluorescence Quantification for Surface Plasmon Excitation** *LANGMUIR*
Feller, B. E., Kellis, J. T., Cascao-Pereira, L. G., Knoll, W., Robertson, C. R., Frank, C. W.
2008; 24 (21): 12303-12311
- **Structure, stability and applications of colloidal crystals** *9th International Symposium on Applied Rheology*
Yanagioka, M., Frank, C. W.
KOREAN SOC RHEOLOGY.2008: 97-107
- **Effect of particle distribution on morphological and mechanical properties of filled hydrogel composites** *MACROMOLECULES*
Yanagioka, M., Frank, C. W.
2008; 41 (14): 5441-5450
- **Progress in the development of interpenetrating polymer network hydrogels** *POLYMERS FOR ADVANCED TECHNOLOGIES*
Myung, D., Waters, D., Wiseman, M., Duhamel, P., Noolandi, J., Ta, C. N., Frank, C. W.
2008; 19 (6): 647-657
- **Development of hydrogel-based keratoprotheses: A materials perspective** *234th National Meeting of the American-Chemical-Society*
Myung, D., Duhamel, P., Cochran, J. R., Noolandi, J., Ta, C. N., Frank, C. W.
WILEY-BLACKWELL.2008: 735-41
- **Glucose-permeable interpenetrating polymer network hydrogels for corneal implant applications: A pilot study** *CURRENT EYE RESEARCH*
Myung, D., Farooqui, N., Waters, D., Schaber, S., Koh, W., Carrasco, M., Noolandi, J., Frank, C. W., Ta, C. N.
2008; 33 (1): 29-43
- **Progress in the development of interpenetrating polymer network hydrogels.** *Polymers for advanced technologies*
Myung, D., Waters, D., Wiseman, M., Duhamel, P. E., Noolandi, J., Ta, C. N., Frank, C. W.
2008; 19 (6): 647-57
- **Sum frequency vibrational spectroscopy: The molecular origins of the optical second-order nonlinearity of collagen** *BIOPHYSICAL JOURNAL*
Rocha-Mendoza, I., Yankelevich, D. R., Wang, M., Reiser, K. M., Frank, C. W., Knoesen, A.
2007; 93 (12): 4433-4444
- **Design and fabrication of an artificial cornea based on a photolithographically patterned hydrogel construct** *BIOMEDICAL MICRODEVICES*
Myung, D., Koh, W., Bakri, A., Zhang, F., Marshall, A., Ko, J., Noolandi, J., Carrasco, M., Cochran, J. R., Frank, C. W., Ta, C. N.
2007; 9 (6): 911-922
- **Enrichment of deuterium oxide at hydrophilic interfaces in aqueous solutions** *LANGMUIR*
Stalgren, J. J., Boschkova, K., Ericsson, J., Frank, C. W., Knoll, W., Satija, S., Toney, M. F.
2007; 23 (24): 11943-11946
- **New ground for organic catalysis: A ring-opening polymerization approach to hydrogels** *BIOMACROMOLECULES*
Nederberg, F., Trang, V., Pratt, R. C., Mason, A. F., Frank, C. W., Waymouth, R. M., Hedrick, J. L.
2007; 8 (11): 3294-3297
- **Quartz resonator signatures under Newtonian liquid loading for initial instrument check** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Cho, N., D'Amour, J. N., Stalgren, J., Knoll, W., Kanazawa, K., Frank, C. W.
2007; 315 (1): 248-254
- **Creation of lipid partitions by deposition of amphipathic viral peptides** *LANGMUIR*
Cho, N., Cho, S., Hardesty, J. O., Glenn, J. S., Frank, C. W.
2007; 23 (21): 10855-10863
- **Employing two different quartz crystal microbalance models to study changes in viscoelastic behavior upon transformation of lipid vesicles to a bilayer on a gold surface** *ANALYTICAL CHEMISTRY*
Chot, N., Kanazawa, K. K., Glenn, J. S., Frank, C. W.
2007; 79 (18): 7027-7035
- **Kinetics of oligonucleotide hybridization to DNA probe Arrays on high-capacity porous silica substrates** *BIOPHYSICAL JOURNAL*
Glazer, M. I., Fidanza, J. A., McGall, G. H., Trulson, M. O., Forman, J. E., Frank, C. W.
2007; 93 (5): 1661-1676

- **Histological processing of pH-sensitive hydrogels used in corneal implant applications** *JOURNAL OF HISTOTECHNOLOGY*
Farooqui, N., Myung, D., Koh, W., Masek, M., Dalal, R., Carrasco, M. R., Noolandi, J., Frank, C. W., Ta, C. N.
2007; 30 (3): 157-163
- **Biomimetic strain hardening in interpenetrating polymer network hydrogels** *POLYMER*
Myung, D., Koh, W., Ko, J., Hu, Y., Carrasco, M., Noolandi, J., Ta, C. N., Frank, C. W.
2007; 48 (18): 5376-5387
- **Employing an amphipathic viral peptide to create a lipid bilayer on Au and TiO₂** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Cho, N., Cho, S., Cheong, K. H., Glenn, J. S., Frank, C. W.
2007; 129 (33): 10050-?
- **Binding dynamics of hepatitis C virus' NS5A amphipathic peptide to cell and model membranes** *JOURNAL OF VIROLOGY*
Cho, N., Cheong, K. H., Lee, C., Frank, C. W., Glenn, J. S.
2007; 81 (12): 6682-6689
- **Glyco-acrylate copolymers for bilayer tethering on benzophenone-modified substrates** *COLLOIDS AND SURFACES B-BIOINTERFACES*
Hwang, L. Y., Goetz, H., Hawker, C. J., Frank, C. W.
2007; 54 (2): 127-135
- **Kinetics of oligonucleotide hybridization to photolithographically patterned DNA arrays** *ANALYTICAL BIOCHEMISTRY*
Glazer, M., Fidanza, J. A., McGall, G. H., Trulson, M. O., Forman, J. E., Suseno, A., Frank, C. W.
2006; 358 (2): 225-238
- **Bonding and molecular environment effects on near-infrared optical absorption behavior in nonlinear optical monoazo chromophore-polymer materials** *MACROMOLECULES*
Barto, R. R., Frank, C. W., Bedworth, P. V., Taylor, R. E., Anderson, W. W., Ermer, S., Jen, A. K., Luo, J. D., Ma, H., Tang, H., Lee, M., Ren, A. S.
2006; 39 (22): 7566-7577
- **Quantitative analysis of tethered vesicle assemblies by quartz crystal microbalance with dissipation monitoring: Binding dynamics and bound water content** *LANGMUIR*
Patel, A. R., Frank, C. W.
2006; 22 (18): 7587-7599
- **Fluid supported lipid bilayers containing mono sialoganglioside GM1: A QCM-D and FRAP study** *COLLOIDS AND SURFACES B-BIOINTERFACES*
Weng, K. C., Kanter, J. L., Robinson, W. H., Frank, C. W.
2006; 50 (1): 76-84
- **Surface reorganization of an amphiphilic block copolymer film studied by NEXAFS spectroscopy** *MACROMOLECULES*
Theato, P., Brehmer, M., Conrad, L., Frank, C. W., Funk, L., Yoon, D. Y., Luning, J.
2006; 39 (7): 2592-2595
- **Capillary aging of the contacts between glass spheres and a quartz resonator surface** *PHYSICAL REVIEW LETTERS*
D'Amour, J. N., Stalgren, J. J., Kanazawa, K. K., Frank, C. W., Rodahl, M., Johannsmann, D.
2006; 96 (5)
- **Synthesis of well-defined hydrogel networks using Click chemistry** *CHEMICAL COMMUNICATIONS*
Malkoch, M., Vestberg, R., Gupta, N., Mespouille, L., Dubois, P., Mason, A. F., Hedrick, J. L., Liao, Q., Frank, C. W., Kingsbury, K., Hawker, C. J.
2006: 2774-2776
- **Probing interparticle adhesion of dry and wet granular materials with the quartz crystal microbalance** *IEEE International Frequency Control Symposium and Exposition*
Johannsmann, D., d'Amour, N. J., Kanazawa, K. K., Stalgren, J. J., Frank, C. W., Rodahl, M.
IEEE.2006: 550-553
- **The dramatic effect of architecture on the self-assembly of block copolymers at interfaces** *LANGMUIR*
Kim, Y., Pyun, J., Frechet, J. M., Hawker, C. J., Frank, C. W.
2005; 21 (23): 10444-10458
- **Near-infrared optical-absorption behavior in high-beta nonlinear optical chromophore-polymer guest-host materials. II. Dye spacer length effects in an amorphous polycarbonate copolymer host** *JOURNAL OF CHEMICAL PHYSICS*

- Barto, R. R., Frank, C. W., BEDWORTH, P. V., Ermer, S., Taylor, R. E.
2005; 122 (23)
- **Phase separation behavior of poly(methyl methacrylate-co-dimethylaminoethyl methacrylate)/methyl silsesquioxane hybrid nanocomposites studied by dansyl fluorescence** *CHEMISTRY OF MATERIALS*
Huang, Q. R., Frank, C. W., Mecerreyes, D., Volksen, W., Miller, R. D.
2005; 17 (6): 1521-1528
 - **Surface characteristics of polyfluorene films studied by polarization-dependent NEXAFS spectroscopy** *MACROMOLECULES*
Jung, Y., Cho, T. Y., Yoon, D. Y., Frank, C. W., Luning, J.
2005; 38 (3): 867-872
 - **Vesicle adsorption and lipid bilayer formation on glass studied by atomic force microscopy** *LANGMUIR*
Schonherr, H., Johnson, J. M., Lenz, P., Frank, C. W., Boxer, S. G.
2004; 20 (26): 11600-11606
 - **Planar bilayer lipid membranes supported on mesoporous aerogels, xerogels, and Vycor((R)) glass: an epifluorescence microscopy study** *7th International Symposium on Aerogels*
Weng, K. C., Stalgren, J. J., Risbud, S. H., Frank, C. W.
ELSEVIER SCIENCE BV.2004: 46-53
 - **In situ formation and characterization of poly(ethylene glycol)-supported lipid bilayers on gold surfaces** *LANGMUIR*
Munro, J. C., Frank, C. W.
2004; 20 (24): 10567-10575
 - **Highly fluorinated and crosslinkable dendritic polymer for photonic applications** *MACROMOLECULAR RAPID COMMUNICATIONS*
Ma, H., Luo, J. D., Kang, S. H., Wong, S., Kang, J. W., Jen, A. K., Barto, R., Frank, C. W.
2004; 25 (19): 1667-1673
 - **Sum-frequency spectroscopy and imaging of aligned helical polypeptides** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
Knoesen, A., Pakalnis, S., Wang, M., Wise, W. D., Lee, N., Frank, C. W.
2004; 10 (5): 1154-1163
 - **Fluid biomembranes supported on nanoporous aerogel/xerogel substrates** *LANGMUIR*
Weng, K. C., Stalgren, J. J., Duval, D. J., Risbud, S. H., Frank, C. W.
2004; 20 (17): 7232-7239
 - **Perfluorocyclobutane-based polyester(arylene ether)s for applications in integrated optics** *MACROMOLECULES*
Wong, S., Ma, H., Jen, A. K., Barto, R., Frank, C. W.
2004; 37 (15): 5578-5585
 - **Langmuir and Langmuir-Blodgett films of amphiphilic bistable rotaxanes** *LANGMUIR*
Lee, I. C., Frank, C. W., Yamamoto, T., Tseng, H. R., Flood, A. H., Stoddart, J. F., Jeppesen, J. O.
2004; 20 (14): 5809-5828
 - **Near-infrared optical absorption Behavior in high-beta nonlinear optical chromophore-polymer guest-host materials. 1. Continuum dielectric effects in polycarbonate hosts** *JOURNAL OF PHYSICAL CHEMISTRY B*
Barto, R. R., Frank, C. W., BEDWORTH, P. V., Ermer, S., Taylor, R. E.
2004; 108 (25): 8702-8715
 - **Influence of substrate chemistry on the properties of ultrathin polymer films** *29th International Conference on Micro and Nano Engineering (MNE 2003)*
D'Amour, J. N., Okoroanyanwu, U., Frank, C. W.
ELSEVIER SCIENCE BV.2004: 209-217
 - **Interaction of poly(vinylidene fluoride) with graphite particles. 2. Effect of solvent evaporation kinetics and chemical properties of PVDF on the surface morphology of a composite film and its relation to electrochemical performance** *CHEMISTRY OF MATERIALS*
Yoo, M., Frank, C. W., Mori, S., Yamaguchi, S.
2004; 16 (10): 1945-1953
 - **Adsorption of lipid-functionalized poly(ethylene glycol) to gold surfaces as a cushion for polymer-supported lipid bilayers** *LANGMUIR*
Munro, J. C., Frank, C. W.

2004; 20 (8): 3339-3349

- **Polyacrylamide adsorption from aqueous solutions on gold and silver surfaces monitored by the quartz crystal microbalance** *MACROMOLECULES*
Munro, J. C., Frank, C. W.
2004; 37 (3): 925-938
- **Nanoporous, low-dielectric constant organosilicate materials derived from inorganic polymer blends** *Symposium on Polymers for Micro- and Nano-Electronics*
Miller, R. D., Volksen, W., Lee, V. Y., Connor, E., Magbitang, T., Zafran, R., Sundberg, L., Hawker, C. J., HEDRICK, J. L., Huang, E., Toney, M., Huang, Q. R., Frank, et al
AMER CHEMICAL SOC.2004: 144-160
- **Photo-cross-linkable PNIPAAm copolymers. 5. Mechanical properties of hydrogel layers** *LANGMUIR*
Harmon, M. E., Kuckling, D., Frank, C. W.
2003; 19 (26): 10660-10665
- **Photo-cross-linkable PNIPAAm copolymers. 4. Effects of copolymerization and cross-linking on the volume-phase transition in constrained hydrogel layers** *LANGMUIR*
Harmon, M. E., Kuckling, D., Pareek, P., Frank, C. W.
2003; 19 (26): 10947-10956
- **Highly fluorinated trifluorovinyl aryl ether monomers and perfluorocyclobutane aromatic ether polymers for optical waveguide applications** *MACROMOLECULES*
Wong, S., Ma, H., Jen, A. K., Barto, R., Frank, C. W.
2003; 36 (21): 8001-8007
- **Miscibility in organic/inorganic hybrid nanocomposites suitable for microelectronic applications: Comparison of modulated differential scanning calorimetry and fluorescence spectroscopy** *MACROMOLECULES*
Huang, Q. R., Kim, H. C., Huang, E., Mecerreyes, D., HEDRICK, J. L., Volksen, W., Frank, C. W., Miller, R. D.
2003; 36 (20): 7661-7671
- **Fast-responsive semi-interpenetrating hydrogel networks imaged with confocal fluorescence microscopy** *POLYMER*
Harmon, M. E., Schrof, W., Frank, C. W.
2003; 44 (22): 6927-6936
- **Adsorption of disulfide-modified polyacrylamides to gold and silver surfaces as cushions for polymer-supported lipid bilayers** *POLYMER*
Munro, J. C., Frank, C. W.
2003; 44 (20): 6335-6344
- **Photolithographic polymerization of diacetylene-containing phospholipid bilayers studied by multimode atomic force microscopy** *LANGMUIR*
Morigaki, K., Schonherr, H., Frank, C. W., Knoll, W.
2003; 19 (17): 6994-7002
- **A microfluidic actuator based on thermoresponsive hydrogels** *POLYMER*
Harmon, M. E., Tang, M., Frank, C. W.
2003; 44 (16): 4547-4556
- **Effect of poly(vinylidene fluoride) binder crystallinity and graphite structure on the mechanical strength of the composite anode in a lithium ion battery** *POLYMER*
Yoo, M., Frank, C. W., Mori, S., Yamaguchi, S.
2003; 44 (15): 4197-4204
- **A hyperbranched aromatic fluoropolyester for photonic applications** *MACROMOLECULES*
Kang, S. H., Luo, J. D., Ma, H., Barto, R. R., Frank, C. W., Dalton, L. R., Jen, A. K.
2003; 36 (12): 4355-4359
- **Morphology of vapor-deposited poly(alpha-amino acid) films** *LANGMUIR*
Lee, N. H., Christensen, L. M., Frank, C. W.
2003; 19 (8): 3525-3530
- **Nucleation and crystallization of low-crystallinity polypropylene followed in situ by hot stage atomic force microscopy** *MACROMOLECULES*

- Schonherr, H., Waymouth, R. M., Frank, C. W.
2003; 36 (7): 2412-2418
- **Ultrathin films of poly(ethylene oxides) on oxidized silicon. 1. Spectroscopic characterization of film structure and crystallization kinetics** *MACROMOLECULES*
Schonherr, H., Frank, C. W.
2003; 36 (4): 1188-1198
 - **Interaction of poly(vinylidene fluoride) with graphite particles. 1. Surface morphology of a composite film and its relation to processing parameters** *CHEMISTRY OF MATERIALS*
Yoo, M., Frank, C. W., Mori, S.
2003; 15 (4): 850-861
 - **Ultrathin films of poly(ethylene oxides) on oxidized silicon. 2. In situ study of crystallization and melting by hot stage AFM** *MACROMOLECULES*
Schonherr, H., Frank, C. W.
2003; 36 (4): 1199-1208
 - **Surface-initiated vapor polymerization of various alpha-amino acids** *LANGMUIR*
Lee, N. H., Frank, C. W.
2003; 19 (4): 1295-1303
 - **Photo-cross-linkable PNIPAAm copolymers. 2. Effects of constraint on temperature and pH-responsive hydrogel layers** *MACROMOLECULES*
Harmon, M. E., Kuckling, D., Frank, C. W.
2003; 36 (1): 162-172
 - **Photophysical characterization of conformational rearrangements for amphiphilic 6-arm star block copolymers in selective solvent mixtures** *MACROMOLECULES*
Yoo, M., Heise, A., HEDRICK, J. L., Miller, R. D., Frank, C. W.
2003; 36 (1): 268-271
 - **Modifications to thermophysical behavior in ultrathin polymer films** *20th Annual Conference on Advances in Resist Technology and Processing*
D'Amour, J. N., Frank, C. W., Okoroanyanwu, U.
SPIE-INT SOC OPTICAL ENGINEERING.2003: 996-1007
 - **Effects of alkyl spacer group length on Vis-NIR absorption behavior in FTC-like guest-host EO polymers** *ORGANIC PHOTONIC MATERIALS AND DEVICES V*
Barto, R. R., BEDWORTH, P. V., Epstein, J., ERMER, S. P., Taylor, R. E., Frank, C. W.
2003; 4991: 575-588
 - **Kinetics off the N-isopropylacrylamide gel-volume phase transition in the presence off free polymer chains** *Symposium on Polymer Gels*
Harmon, M. E., Frank, C. V.
AMER CHEMICAL SOC.2003: 2-11
 - **Nanoscale architectural control of organic functional materials for photonics** *Conference on Nanomaterials and Their Optical Applications*
Luo, J. D., Kim, T. D., Ma, H., Liu, S., Kang, S. H., Wong, S., Haller, M., Jang, S. H., Li, H., Barto, R. R., Frank, C. W., Dalton, L. R., Jen, et al
SPIE-INT SOC OPTICAL ENGINEERING.2003: 104-112
 - **Separation of chiral molecules using polypeptide-modified poly(vinylidene fluoride) membranes** *POLYMER*
Lee, N. H., Frank, C. W.
2002; 43 (23): 6255-?
 - **Synthesis of lipo-glycopolymer amphiphiles by nitroxide-mediated living free-radical polymerization** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*
Gotz, H., Harth, E., Schiller, S. M., Frank, C. W., Knoll, W., Hawker, C. J.
2002; 40 (20): 3379-3391
 - **Structure and interaction of organic/inorganic hybrid nanocomposites for microelectronic applications. 1. MSSQ/P(MMA-co-DMAEMA) nanocomposites** *CHEMISTRY OF MATERIALS*
Huang, Q. R., Volksen, W., Huang, E., Toney, M., Frank, C. W., Miller, R. D.
2002; 14 (9): 3676-3685

- **Photo-cross-linkable PNIPAAm copolymers. 1. Synthesis and characterization of constrained temperature-responsive hydrogel layers** *MACROMOLECULES*
Kuckling, D., Harmon, M. E., Frank, C. W.
2002; 35 (16): 6377-6383
- **A surface plasmon resonance study of volume phase transitions in N-isopropylacrylamide gel films** *MACROMOLECULES*
Harmon, M. E., Jakob, T. A., Knoll, W., Frank, C. W.
2002; 35 (15): 5999-6004
- **Unraveling the nanostructure of supramolecular assemblies of hydrogen-bonded rosettes on graphite: An atomic force microscopy study** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Schonherr, H., Paraschiv, V., Zapotoczny, S., Crego-Calama, M., Timmerman, P., Frank, C. W., Vancso, G. J., Reinhoudt, D. N.
2002; 99 (8): 5024-5027
- **Morphology of thermoplastic elastomers: Elastomeric polypropylene** *MACROMOLECULES*
Schonherr, H., Wiyatno, W., Pople, J., Frank, C. W., Fuller, G. G., Gast, A. P., Waymouth, R. M.
2002; 35 (7): 2654-2666
- **Surface shear rheology of a polymerizable lipopolymer monolayer** *LANGMUIR*
Brooks, C. F., Thiele, J., Frank, C. W., O'Brien, D. F., Knoll, W., Fuller, G. G., Robertson, C. R.
2002; 18 (6): 2166-2173
- **Analyzing the surface temperature depression in hot stage atomic force microscopy with unheated cantilevers: Application to the crystallization of poly(ethylene oxide)** *LANGMUIR*
Schonherr, H., Bailey, L. E., Frank, C. W.
2002; 18 (2): 490-498
- **Using surface plasmon resonance and the quartz crystal microbalance to monitor in situ the interfacial behavior of thin organic films** *LANGMUIR*
Bailey, L. E., Kambhampati, D., Kanazawa, K. K., Knoll, W., Frank, C. W.
2002; 18 (2): 479-489
- **The polymer-supported phospholipid bilayer: Tethering as a new approach to substrate-membrane stabilization** *BIOMACROMOLECULES*
Naumann, C. A., Prucker, O., Lehmann, T., Ruhe, J., Knoll, W., Frank, C. W.
2002; 3 (1): 27-35
- **Interaction between poly(vinylidene fluoride) binder and graphite in the anode of lithium ion batteries: Rheological properties and surface chemistry** *Symposium on Materials for Energy Storage, Generation and Transport held at the MRS Spring Meeting*
Yoo, M. Y., Frank, C. W.
MATERIALS RESEARCH SOCIETY.2002: 167-172
- **Dendritic NLO chromophore with fluorinated dendrons for improving poling efficiency in electro-optic devices** *Conference on Nanoscale Optics and Applications*
Jen, A. K., Luo, J. D., Ma, H., Haller, M., Barto, R. R., Frank, C. W.
SPIE-INT SOC OPTICAL ENGINEERING.2002: 79-85
- **Measuring thermophysical properties of ultrathin photoresist films** *19th Annual Conference on Advances in Resist Technology and Processing*
D'Amour, J. N., Frank, C. W., Okoroanyanwa, U.
SPIE-INT SOC OPTICAL ENGINEERING.2002: 936-942
- **Pyrene fluorescence as a molecular probe of miscibility in organic/inorganic hybrid nanocomposites suitable for microelectronic applications** *Symposium on Hybrid Organic-Inorganic Materials held at the 2002 MRS Spring Meeting*
Huang, Q. R., Mecerreyes, D., HEDRICK, J. L., Volksen, W., Frank, C. W., Miller, R. D.
MATERIALS RESEARCH SOCIETY.2002: 211-216
- **Polymer molecular environment effects on Disperse Red Vis-NIR absorption behavior** *8th Conference on Photonics for Space Environments VIII*
Barto, R., Frank, C. W., ERMER, S. P., Anderson, W. W., Sun, S., Maaref, S., Jen, A. K., Luo, J. D., Lee, M.
SPIE-INT SOC OPTICAL ENGINEERING.2002: 54-66
- **Photocrosslinking and SHG stability of PDRMA/PDRFC thin films** *Conference on Linear and Nonlinear Optics of Organic Materials II*
Maaref, S., Roz, Z., Sun, S. S., Seo, K., Bonner, C. E., Barto, R., Frank, C. W.

SPIE-INT SOC OPTICAL ENGINEERING.2002: 203-211

- **Transient quartz crystal microbalance behaviors compared** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Geelhood, S. J., Frank, C. W., Kanazawa, K.
2002; 149 (1): H33-H38
- **Multistep adsorption of perfluoropolyether hard-disk lubricants onto amorphous carbon substrates from solution** *LANGMUIR*
Bailey, L. E., Kanazawa, K. K., Bhatara, G., Tyndall, G. W., Kreiter, M., Knoll, W., Frank, C. W.
2001; 17 (26): 8145-8155
- **Colloidal silica films for high-capacity DNA probe arrays** *CHEMISTRY OF MATERIALS*
Glazer, M., Fidanza, J., McGall, G., Frank, C.
2001; 13 (12): 4773-4782
- **Dendritic-linear A(x)B(x) block copolymers prepared via controlled ring-opening polymerization of lactones from orthogonally protected multifunctional initiators** *MACROMOLECULES*
Wursch, A., Moller, M., Glauser, T., Lim, L. S., Voytek, S. B., HEDRICK, J. L., Frank, C. W., Hilborn, J. G.
2001; 34 (19): 6601-6615
- **Fluorescence studies of the hybrid composite of segmented-polyurethane and silica** *CHEMISTRY OF MATERIALS*
Goda, H., Frank, C. W.
2001; 13 (9): 2783-2787
- **Investigation of the initiation behavior of a dendritic 12-arm initiator in atom transfer radical polymerization** *MACROMOLECULES*
Heise, A., Diamanti, S., HEDRICK, J. L., Frank, C. W., Miller, R. D.
2001; 34 (11): 3798-3801
- **Two-dimensional physical networks of lipopolymers at the air/water interface: Correlation of molecular structure and surface rheological behavior** *LANGMUIR*
Naumann, C. A., Brooks, C. F., Fuller, G. G., Lehmann, T., Ruhe, J., Knoll, W., Kuhn, P., Nuyken, O., Frank, C. W.
2001; 17 (9): 2801-2806
- **Star polymers with alternating arms from multifunctional mu-initiators using consecutive atom transfer radical polymerization and ring-opening polymerization** *MACROMOLECULES*
Heise, A., Trollsas, M., Magbitang, T., HEDRICK, J. L., Frank, C. W., Miller, R. D.
2001; 34 (9): 2798-2804
- **Rheological properties of lipopolymer-phospholipid mixtures at the air-water interface: A novel form of two-dimensional physical gelation** *MACROMOLECULES*
Naumann, C. A., Brooks, C. F., Wiyatno, W., Knoll, W., Fuller, G. G., Frank, C. W.
2001; 34 (9): 3024-3032
- **Frictional properties of perfluoropolyether monolayers investigated with quartz resonators** *APPLIED PHYSICS LETTERS*
Laschitsch, A., Bailey, L. E., Tyndall, G. W., Frank, C. W., Johannsmann, D.
2001; 78 (17): 2601-2603
- **Polymer-supported lipid bilayers on benzophenone-modified substrates** *BIOMACROMOLECULES*
Shen, W. W., Boxer, S. G., Knoll, W., Frank, C. W.
2001; 2 (1): 70-79
- **Two-dimensional physical networks of lipopolymers at the air/water interface** *3rd International Conference on Polymer-Solvent Complexes and Intercalates*
Frank, C. W., Naumann, C. A., Knoll, W., Brooks, C. F., Fuller, G. G.
WILEY-VCH VERLAG GMBH.2001: 1-12
- **Hindered diffusion in polymer-tethered membranes: A monolayer study at the air-water interface** *BIOMACROMOLECULES*
Naumann, C. A., Knoll, W., Frank, C. W.
2001; 2 (4): 1097-1103
- **Sum-frequency spectroscopic investigation of the alignment of liquid crystals on self-assembled monolayers and Imaging of endgrafted alpha-helical polypeptide films** *14th Annual Meeting of the IEEE Lasers-and-Electro-Optics-Society*
Knoesen, A., Pakalnis, S., Follonier, S., Miller, W., Abbott, N., Lee, N., Frank, C.

IEEE.2001: 632-633

- **High capacity substrates as a platform for a DNA probe array genotyping assay** *14th International Roundtable on Nucleosides, Nucleotides and their Biological Applications*
Fidanza, J., Glazer, M., Mutnick, D., McGall, G., Frank, C.
TAYLOR & FRANCIS INC.2001: 533-38
- **Functional tethered lipid bilayers.** *Journal of biotechnology*
Knoll, W., Frank, C. W., Heibel, C., Naumann, R., Offenhäusser, A., Rühle, J., Schmidt, E. K., Shen, W. W., Sinner, A.
2000; 74 (3): 137-158
- **Starlike polymeric architectures by atom transfer radical polymerization: Templates for the production of low dielectric constant thin films** *MACROMOLECULES*
Heise, A., Nguyen, C., Malek, R., HEDRICK, J. L., Frank, C. W., Miller, R. D.
2000; 33 (7): 2346-2354
- **Interfacial interaction in polyimide/silica hybrid composites by fluorescence spectroscopy** *CHEMISTRY OF MATERIALS*
Ha, C. S., Park, H. D., Frank, C. W.
2000; 12 (3): 839-844
- **Viscoelastic properties of lipopolymers at the air-water interface: A combined interfacial stress rheometer and film balance study** *LANGMUIR*
Naumann, C. A., Brooks, C. F., Fuller, G. G., Knoll, W., Frank, C. W.
1999; 15 (22): 7752-7761
- **Polymer thin film properties as a function of temperature and pressure** *MACROMOLECULAR SYMPOSIA*
Kleideiter, G., Prucker, O., Bock, H., Frank, C. W., Lechner, M. D., Knoll, W.
1999; 145: 95-102
- **Quadrupolar and polar anisotropy in end-grafted alpha-helical poly(gamma-benzyl-L-glutamate) on solid substrates** *JOURNAL OF CHEMICAL PHYSICS*
Chang, Y. C., Frank, C. W., Forstmann, G. G., Johannsmann, D.
1999; 111 (13): 6136-6143
- **Photochemical attachment of polymer films to solid surfaces via monolayers of benzophenone derivatives** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Prucker, O., Naumann, C. A., Ruhe, J., Knoll, W., Frank, C. W.
1999; 121 (38): 8766-8770
- **Starlike block copolymers with amphiphilic arms as models for unimolecular micelles** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Heise, A., HEDRICK, J. L., Frank, C. W., Miller, R. D.
1999; 121 (37): 8647-8648
- **Discrimination of DNA hybridization using chemical force microscopy** *BIOPHYSICAL JOURNAL*
Mazzola, L. T., Frank, C. W., Fodor, S. P., Mosher, C., Lartius, R., Henderson, E.
1999; 76 (6): 2922-2933
- **An interfacial stress rheometer to study rheological transitions in monolayers at the air-water interface** *LANGMUIR*
Brooks, C. F., Fuller, G. G., Frank, C. W., Robertson, C. R.
1999; 15 (7): 2450-2459
- **Adaptation of bulk constitutive equations to insoluble monolayer collapse at the air-water interface** *SCIENCE*
Kampf, J. P., Frank, C. W., Malmstrom, E. E., Hawker, C. J.
1999; 283 (5408): 1730-1733
- **Novel starlike poly(methyl methacrylate)s by controlled dendritic free radical initiation** *MACROMOLECULES*
Heise, A., HEDRICK, J. L., Trollsas, M., Miller, R. D., Frank, C. W.
1999; 32 (1): 231-234
- **Stability and molecular conformation of poly(benzyl ether) monodendrons with oligo(ethylene glycol) tails at the air-water interface** *LANGMUIR*
Kampf, J. P., Frank, C. W., Malmstrom, E. E., Hawker, C. J.
1999; 15 (1): 227-233

- **Photoisomerization of polyionic layer-by-layer films containing azobenzene** *LANGMUIR*
Dante, S., Advincula, R., Frank, C. W., Stroeve, P.
1999; 15 (1): 193-201
- **High surface area substrates for DNA arrays** *Symposium DD on Organic Inorganic Hybrid Materials held at the 1999 MRS Spring Meeting*
Glazer, M., Frank, C., Vinci, R. P., McGall, G., Fidanza, J., Beecher, J.
MATERIALS RESEARCH SOCIETY.1999: 371-376
- **On the glass transition in ultrathin polymer films of different molecular architecture** *MACROMOLECULAR CHEMISTRY AND PHYSICS*
Prucker, O., Christian, S., Bock, H., Ruhe, J., Frank, C. W., Knoll, W.
1998; 199 (7): 1435-1444
- **Orientation in a fatty acid monolayer: Effect of flow type** *LANGMUIR*
Maruyama, T., Lauger, J., Fuller, G. G., Frank, C. W., Robertson, C. R.
1998; 14 (7): 1836-1845
- **Vapor deposition-polymerization of alpha-amino acid N-carboxy anhydride on the silicon(100) native oxide surface** *LANGMUIR*
Chang, Y. C., Frank, C. W.
1998; 14 (2): 326-334
- **Supramolecular Thin Film Architectures for Photonic Applications** *MOLECULAR CRYSTALS AND LIQUID CRYSTALS SCIENCE AND TECHNOLOGY SECTION A-MOLECULAR CRYSTALS AND LIQUID CRYSTALS*
Advincula, R., Frank, C. W., Roitman, D., Sheats, J., Moon, R., Knoll, W.
1998; 316: 103-112
- **Composition of binary self-assembled monolayers of alkyltrichlorosilanes** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Yang, J. Y., Frank, C. W.
AMER CHEMICAL SOC.1998: 67-80
- **End group effects on adhesion of perfluoropolyether lubricants to solid substrates** *Symposium on Fundamentals of Adhesion and Interfaces at the Fall Meeting of the American-Chemical-Society*
Xu, C. B., Frank, C. W., Tang, W. T., Terrill, C.
TAYLOR & FRANCIS LTD.1998: 195-215
- **Chemical grafting of poly(L-glutamate) gamma-esters on silicon (100) surfaces by vapor polymerization of N-carboxy anhydride monomers** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Chang, Y. C., Frank, C. W.
AMER CHEMICAL SOC.1998: 142-157
- **Glass transition in ultrathin polymer films** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Prucker, O., Christian, S., Bock, H., Ruhe, J., Frank, C. W., Knoll, W.
AMER CHEMICAL SOC.1998: 233-249
- **Langmuir and Langmuir-Blodgett-Kuhn films of poly(vinylidene fluoride) and poly(vinylidene fluoride-co-trifluoroethylene) alternated with poly(methyl methacrylate) or poly(octadecyl methacrylate)** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Advincula, R. C., Knoll, W., Blinov, L., Frank, C. W.
AMER CHEMICAL SOC.1998: 192-205
- **Pentaerythritol-based polyether dendrimers at the air-water interface** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Kampf, J. P., Einloth, T. L., Frank, C. W., Li, Y. F., Oh, J. M., Moore, J. A.
AMER CHEMICAL SOC.1998: 31-42
- **Flow-induced deformation and relaxation processes of polydomain structures in Langmuir monolayer** *Symposium on Organic Thin Films held at the 213th National Meeting of the American-Chemical-Society*
Yim, K. S., Brooks, C. F., Fuller, G. G., Frank, C. W., Robertson, C. R.
AMER CHEMICAL SOC.1998: 43-56
- **Exact linear analogs of dendritic polyether macromolecules: Design, synthesis, and unique properties** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

- Hawker, C. J., Malmstrom, E. E., Frank, C. W., Kampf, J. P.
1997; 119 (41): 9903-9904
- **Surface polymerization of poly(γ -alkyl-L-glutamate) on solid substrates** *36th International Symposium on Macromolecules (IUPAC MACRO SEOUL 96)*
Chang, Y. C., Frank, C. W.
WILEY-VCH VERLAG GMBH.1997: 641-646
 - **Oriental dynamics of a two-dimensional polymer nematic.**
Fuller, G. G., Maruyama, T., Frank, C. W., Robertson, C. R.
AMER CHEMICAL SOC.1997: 521-POLY
 - **Liquid crystal anchoring on binary silane self-assembled monolayers**
Yang, J. M., Frank, C. W.
AMER CHEMICAL SOC.1997: 451-POLY
 - **Interfacial properties of polyimide Langmuir-Blodgett film**
Shin, D. M., Frank, C. W., Miller, R. D.
AMER CHEMICAL SOC.1997: 383-POLY
 - **Grafting of poly(γ -benzyl-L-glutamate) on chemically modified silicon oxide surfaces** *LANGMUIR*
Chang, Y. C., Frank, C. W.
1996; 12 (24): 5824-5829
 - **Deformation and relaxation processes of mono- and bilayer domains of liquid crystalline Langmuir films on water** *LANGMUIR*
Lauger, J., Robertson, C. R., Frank, C. W., Fuller, G. G.
1996; 12 (23): 5630-5635
 - **Flow-induced molecular orientation of a Langmuir film** *SCIENCE*
Maruyama, T., Fuller, G., Frank, C., Robertson, C.
1996; 274 (5285): 233-235
 - **The effect of pressure on block copolymer micelle formation: Fluorescence and light scattering studies of poly(styrene-*b*-ethylene propylene) in heptane** *POLYMER*
YLITALO, D. A., Frank, C. W.
1996; 37 (22): 4969-4978
 - **Polymer chain organization and orientation in ultrathin films: A spectroscopic investigation** *JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS*
DESPOTOPOULOU, M. M., Miller, R. D., Rabolt, J. F., Frank, C. W.
1996; 34 (14): 2335-2349
 - **Kinetics of chain organization in ultrathin poly(di-*n*-hexylsilane) films** *MACROMOLECULES*
DESPOTOPOULOU, M. M., Frank, C. W., Miller, R. D., Rabolt, J. F.
1996; 29 (18): 5797-5804
 - **Perfluoropolyether derivatives at the air-water and air-solid interfaces.**
Xu, C. B., Goedel, W. A., Tang, W. T., Frank, C. W.
AMER CHEMICAL SOC.1996: 328-POLY
 - **Structure in thin and ultrathin spin-cast polymer films** *SCIENCE*
Frank, C. W., Rao, V., DESPOTOPOULOU, M. M., Pease, R. F., Hinsberg, W. D., Miller, R. D., Rabolt, J. F.
1996; 273 (5277): 912-915
 - **Photophysical studies of probes bound to cross-link junctions in poly(dimethyl siloxane) elastomers and nanocomposites** *3rd International Symposium on Functional Dyes (FUNCTIONAL DYE 95)*
Leezenberg, P. B., Fayer, M. D., Frank, C. W.
INT UNION PURE APPLIED CHEMISTRY.1996: 1381-88
 - **Static and kinetic friction of strongly confined polymer films under shear** *MACROMOLECULES*
HIRZ, S., Subbotin, A., Frank, C., HADZIIOANNOU, G.

1996; 29 (11): 3970-3974

- **Rotational dynamics of naphthalene-labeled cross-link junctions in poly(dimethylsiloxane) elastomers** *JOURNAL OF PHYSICAL CHEMISTRY*
Leezenberg, P. B., Marcus, A. H., Frank, C. W., Fayer, M. D.
1996; 100 (18): 7646-7655
- **Direct visualization of flow-induced anisotropy in a fatty acid monolayer** *LANGMUIR*
FRIEDENBERG, M. C., Fuller, G. G., Frank, C. W., Robertson, C. R.
1996; 12 (6): 1594-1599
- **In-situ studies of flow-induced phenomena in Langmuir monolayers** *International Symposium on Ultra Materials for Picotransfer*
Maruyama, T., Friedenber, M., Fuller, G. G., Frank, C. W., Robertson, C. R., Ferencz, A., Wegner, G.
ELSEVIER SCIENCE SA.1996: 76-83
- **In situ optical studies of flow-induced orientation in a two-dimensional polymer solution** *MACROMOLECULES*
FRIEDENBERG, M. C., Fuller, G. G., Frank, C. W., Robertson, C. R.
1996; 29 (2): 705-712
- **Structure in Thin and Ultrathin Spin-Cast Polymer Films** *Science (New York, N.Y.)*
Frank, C. W., Rao, V., Despotopoulou, M. M., Pease, R. F., Hinsberg, W. D., Miller, R. D., Rabolt, J. F.
1996; 273 (5277): 912-15
- **Interfacial rheology of monolayers** *XIIth International Congress on Rheology*
Maruyama, T., Lauger, J., Maffettone, P. L., Fuller, G. G., Frank, C., Robertson, R.
UNIV LAVAL, DEPT MECH ENGN.1996: 163-164
- **SELECTIVE SORPTION AND SOLVATION IN DANSYL-LABELED POLY(DIMETHYLSILOXANE) NETWORKS SWOLLEN IN BINARY SOLVENT MIXTURES** *MACROMOLECULES*
Leezenberg, P. B., Frank, C. W.
1995; 28 (22): 7407-7415
- **IN-SITU PRECIPITATION OF SILICA IN DANSYL-LABELED POLY(DIMETHYLSILOXANE) ELASTOMERS** *CHEMISTRY OF MATERIALS*
Leezenberg, P. B., Frank, C. W.
1995; 7 (10): 1784-1792
- **ROLE OF THE RESTRICTED GEOMETRY ON THE MORPHOLOGY OF ULTRATHIN POLY(DI-N-HEXYLSILANE) FILMS** *MACROMOLECULES*
DESPOTOPOULOU, M. M., Frank, C. W., Miller, R. D., Rabolt, J. F.
1995; 28 (19): 6687-6688
- **SURFACE INITIATED POLYMERIZATION OF POLYGLUTAMATE COPOLYMERS**
Chang, Y. C., VANESBROEK, H., Frank, C. W.
AMER CHEMICAL SOC.1995: 304-POLY
- **OPTICAL STUDIES OF FLOW-ORIENTATION AND RELAXATION IN MONOLAYER FILMS**
FRIEDENBERG, M. C., Maruyama, T., Fuller, G. G., Frank, C. W., Robertson, C. R.
AMER CHEMICAL SOC.1995: 143-POLY
- **Fluorescence probe studies of self-assembled monolayer and multilayer films from n-alkyltrichlorosilanes** *Symposium on Surfactant Adsorption and Surface Solubilization, at the 208th National Meeting of the American-Chemical-Society*
Chen, S. H., Frank, C. W.
AMER CHEMICAL SOC.1995: 217-230
- **SOLVENT PARTITIONING IN FLUORESCENT POLYDIMETHYLSILOXANE NETWORKS** *JOURNAL OF MATERIALS CHEMISTRY*
Hoffmann, D. A., Anderson, J. E., Frank, C. W.
1995; 5 (1): 13-25
- **MONOLAYERS OF PERFLUOROPOLYETHERS WITH A HYDROPHILIC HEAD GROUP** *LANGMUIR*
Goedel, W. A., Wu, H., FRIEDENBERG, M. C., Fuller, G. G., Foster, M., Frank, C. W.
1994; 10 (11): 4209-4218

- **FORMATION OF BILAYER DISKS AND 2-DIMENSIONAL FOAMS ON A COLLAPSING EXPANDING LIQUID-CRYSTAL MONOLAYER** *LANGMUIR*
FRIEDENBERG, M. C., Fuller, G. G., Frank, C. W., Robertson, C. R.
1994; 10 (4): 1251-1256
- **VAN-DER-WAALS EPITAXIAL-GROWTH OF ALPHA-ALUMINA NANOCRYSTALS ON MICA**
Steinberg, S., Ducker, W., Berman, A., HYUKJIN, C., Frank, C., Tseng, W., Clarke, D. R., Israelachvili, J. N.
AMER CHEMICAL SOC.1994: 161-PHYS
- **THE ROLE OF RESIDUAL CASTING SOLVENT IN DISSOLUTION BEHAVIOR OF POLY(3-METHYL-4-HYDROXYSTYRENE) FILMS** *Advances in Resist Technology and Processing XI Conference/SPIE 1994 Symposium on Microlithography*
Rao, V., Hinsberg, W. D., Frank, C. W., Pease, R. F.
SPIE - INT SOC OPTICAL ENGINEERING.1994: 596-609
- **Binary self-assembled monolayers: Spectroscopy and application to liquid crystal alignment** *JRDC-KUL Joint International Symposium on Spectroscopy and Chemistry in Small Domains*
Yang, J. Y., Mathauer, K., Frank, C. W.
ELSEVIER SCIENCE PUBL B V.1994: 441-454
- **LANGMUIR-BLODGETT DEPOSITION TO EVALUATE DISSOLUTION BEHAVIOR OF MULTICOMPONENT RESISTS** *Symposium on Polymers for Microelectronics: Resists and Dielectrics, at the 203rd National Meeting of the American-Chemical-Society*
Rao, V., Hinsberg, W. D., Frank, C. W., Pease, R. F.
AMER CHEMICAL SOC.1994: 220-234
- **BINARY SELF-ASSEMBLED MONOLAYERS AS PREPARED BY SUCCESSIVE ADSORPTION OF ALKYLTRICHLOROSILANES** *LANGMUIR*
Mathauer, K., Frank, C. W.
1993; 9 (12): 3446-3451
- **NAPHTHALENE CHROMOPHORE TETHERED IN THE CONSTRAINED ENVIRONMENT OF A SELF-ASSEMBLED MONOLAYER** *LANGMUIR*
Mathauer, K., Frank, C. W.
1993; 9 (11): 3002-3008
- **MONOLAYER MISCIBILITY OF A HAIRY RODLIKE POLYGLUTAMATE AND N-ALKYL AMPHIPHILES** *LANGMUIR*
Mathauer, K., Vahlenkamp, T., Frank, C. W., Wegner, G.
1993; 9 (6): 1582-1586
- **VANDERWAALS EPITAXIAL-GROWTH OF ALPHA-ALUMINA NANOCRYSTALS ON MICA** *SCIENCE*
Steinberg, S., Ducker, W., Vigil, G., HYUKJIN, C., Frank, C., TSENG, M. Z., Clarke, D. R., Israelachvili, J. N.
1993; 260 (5108): 656-659
- **THE SURFACE-ACTIVITY OF TELECHELIC PERFLUOROPOLYETHERS**
Goedel, W. A., Xu, C. B., Frank, C. W.
AMER CHEMICAL SOC.1993: 235-COLL
- **Diazonaphthoquinone-novolac resist dissolution in composite Langmuir-Blodgett and spin-cast films** *IRRADIATION OF POLYMERIC MATERIALS*
Kosbar, L. L., Frank, C. W., Pease, R. F., Hutchinson, J.
1993; 527: 245-265
- **MOLECULAR MECHANISMS AND KINETICS DURING THE SELF-ASSEMBLY OF SURFACTANT LAYERS** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
Chen, Y. L., Chen, S., Frank, C., Israelachvili, J.
1992; 153 (1): 244-265
- **CONTIN ANALYSIS OF COLLOIDAL AGGREGATES** *LANGMUIR*
Ju, R. T., Frank, C. W., Gast, A. P.
1992; 8 (9): 2165-2171
- **MOLECULAR AND IONIC REARRANGEMENTS DURING THE SELF-ASSEMBLY OF SURFACTANT MONOLAYERS AND BILAYERS**
Israelachvili, J., Chen, Y. L., Frank, C., Chen, S.
AMER CHEMICAL SOC.1992: 34-COLL

- **DYNAMICS IN POLY(DIMETHYLSILOXANE) MELTS - FLUORESCENCE DEPOLARIZATION MEASUREMENTS OF PROBE CHROMOPHORE ORIENTATIONAL RELAXATION** *JOURNAL OF PHYSICAL CHEMISTRY*
Stein, A. D., Hoffmann, D. A., Marcus, A. H., Leezenberg, P. B., Frank, C. W., Fayer, M. D.
1992; 96 (13): 5255-5263
- **THE USE OF LANGMUIR-BLODGETT DEPOSITION TO EVALUATE DISSOLUTION BEHAVIOR OF MULTICOMPONENT RESISTS**
Rao, V., Hinsberg, W. D., Frank, C. W., Pease, R. F.
AMER CHEMICAL SOC.1992: 54-PMSE
- **REORIENTATIONAL MOTION OF A CROSS-LINK JUNCTION IN A POLY(DIMETHYLSILOXANE) NETWORK MEASURED BY TIME-RESOLVED FLUORESCENCE DEPOLARIZATION** *JOURNAL OF CHEMICAL PHYSICS*
Stein, A. D., Hoffman, D. A., Frank, C. W., Fayer, M. D.
1992; 96 (4): 3269-3278
- **THE INFLUENCE OF SOLVENT ON LABELED AND FREE PYRENE AGGREGATION IN NOVOLAC SOLUTIONS AND FILMS** *POLYMER*
Kosbar, L. L., Frank, C. W.
1992; 33 (1): 141-151
- **EFFECT OF SUBSTRATE ON SHEARING PROPERTIES OF ULTRATHIN POLYMER-FILMS** *LANGMUIR*
Hirz, S. J., HOMOLA, A. M., HADZIIOANNOU, G., Frank, C. W.
1992; 8 (1): 328-333
- **EXCIMER FLUORESCENCE IN POLYPHOSPHAZENES .2. MORPHOLOGY AND DYNAMICS IN POLYMER-FILMS** *MACROMOLECULES*
Yeung, A. S., Frank, C. W., Singler, R. E.
1991; 24 (20): 5539-5545
- **FLUORESCENCE PROBE STUDIES OF SELF-ASSEMBLED MONOLAYER FILMS** *LANGMUIR*
Chen, S. H., Frank, C. W.
1991; 7 (8): 1719-1726
- **THE EFFECT OF PRESSURE ON BLOCK COPOLYMER MICELLES**
YLITALO, D. A., Frank, C. W.
AMER CHEMICAL SOC.1991: 307-POLY
- **CHARACTERIZATION OF PERFLUOROPOLYETHER LUBRICANTS SUBJECTED TO THERMAL-TREATMENT ON VARIOUS SOLID SUBSTRATES**
Xu, C. B., Frank, C. W., Tang, W. T.
AMER CHEMICAL SOC.1991: 143-COLL
- **FLUORESCENCE SPECTROSCOPY OF POLYMERS IN CONSTRAINED GEOMETRY**
Frank, C. W., Chen, S. H., KUAN, S. W., Yeung, A. S., Ylitalo, D., Pease, R. F.
AMER CHEMICAL SOC.1991: 74-PMSE
- **HYDROPHOBIC EFFECTS ON COMPLEXATION AND AGGREGATION IN WATER-SOLUBLE POLYMERS - FLUORESCENCE, PH, AND DYNAMIC LIGHT-SCATTERING MEASUREMENTS** *SYMP AT THE 198TH NATIONAL MEETING OF THE AMERICAN CHEMICAL SOC - WATER SOLUBLE POLYMERS : SYNTHESIS, SOLUTION PROPERTIES AND APPLICATIONS*
Frank, C. W., HEMKER, D. J., Oyama, H. T.
AMER CHEMICAL SOC.1991: 303-319
- **N-ALKANOIC ACID SELF-ASSEMBLED MONOLAYERS - ADSORPTION-KINETICS** *ACS SYMPOSIUM SERIES*
Chen, S. H., Frank, C. W.
1991; 447: 160-176
- **HYDROPHOBIC EFFECTS ON COMPLEXATION AND AGGREGATION IN WATER-SOLUBLE POLYMERS - FLUORESCENCE, PH, AND DYNAMIC LIGHT-SCATTERING MEASUREMENTS** *ACS SYMPOSIUM SERIES*
Frank, C. W., HEMKER, D. J., Oyama, H. T.
1991; 467: 303-319
- **N-ALKANOIC ACID SELF-ASSEMBLED MONOLAYERS - ADSORPTION-KINETICS** *SYMP AT THE 199TH NATIONAL MEETING OF THE AMERICAN CHEMICAL SOC : FOURIER TRANSFORM INFRARED SPECTROSCOPY IN COLLOID AND INTERFACE SCIENCE*
Chen, S. H., Frank, C. W.

AMER CHEMICAL SOC.1991: 160-176

- **BLOCK COPOLYMER MICELLE SOLUTIONS .2. AN INTRINSIC EXCIMER FLUORESCENCE STUDY** *POLYMER*
Yeung, A. S., Frank, C. W.
1990; 31 (11): 2101-2111
- **BLOCK COPOLYMER MICELLE SOLUTIONS .1. CONCENTRATION-DEPENDENCE OF POLYSTYRENE-POLY(ETHYLENE PROPYLENE) IN HEPTANE** *POLYMER*
Yeung, A. S., Frank, C. W.
1990; 31 (11): 2089-2100
- **MULTICOMPONENT LANGMUIR-BLODGETT RESISTS FOR OPTICAL LITHOGRAPHY** *34TH INTERNATIONAL SYMP ON ELECTRON, ION, AND PHOTON BEAMS*
Kosbar, L. L., Frank, C. W., Pease, R. F.
AMER INST PHYSICS.1990: 1441-46
- **DYNAMIC LIGHT-SCATTERING-STUDIES OF THE FRACTAL AGGREGATION OF POLY(METHACRYLIC ACID) AND POLY(ETHYLENE GLYCOL)** *MACROMOLECULES*
HEMKER, D. J., Frank, C. W.
1990; 23 (20): 4404-4410
- **COMPLEXATION OF POLY(ACRYLIC ACID) AND POLY(METHACRYLIC ACID) WITH PYRENE-END-LABELED POLY(ETHYLENE GLYCOL) - PH AND FLUORESCENCE MEASUREMENTS** *MACROMOLECULES*
HEMKER, D. J., Garza, V., Frank, C. W.
1990; 23 (20): 4411-4418
- **TRANSFER PRESSURE EFFECTS ON THE STRUCTURE OF MONOLAYER PMMA FILMS**
KUAN, S. W., Martin, P. S., Frank, C. W., Pease, R. F.
AMER CHEMICAL SOC.1990: 391-POLY
- **EXCIMER FLUORESCENCE AS A MOLECULAR PROBE OF POLYMER BLEND MISCIBILITY .9. EFFECTS OF GUEST CONCENTRATION AND ANNEALING IN BLENDS OF POLY(2-VINYLNAPHTHALENE) WITH POLY(CYCLOHEXYL METHACRYLATE)** *MACROMOLECULES*
Tao, W. C., Frank, C. W.
1990; 23 (13): 3275-3283
- **EXCIMER FLUORESCENCE IN POLYPHOSPHAZENES .1. CYCLIC TRIMER AND POLYMER-SOLUTIONS** *POLYMER*
Yeung, A. S., Frank, C. W., Singler, R. E.
1990; 31 (6): 1092-1099
- **SPECTROSCOPIC INVESTIGATION OF OXYGEN VACANCIES IN SOLID OXIDE ELECTROLYTES** *APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING*
Wachsman, E. D., Jiang, N., Frank, C. W., Mason, D. M., Stevenson, D. A.
1990; 50 (6): 545-549
- **FLUORESCENCE STUDIES OF POLYMER ADSORPTION .4. PH EFFECT ON THE ADSORPTION OF PYRENE-END-TAGGED POLY(ETHYLENE GLYCOL) ON COLLOIDAL SILICA** *LANGMUIR*
Char, K., Frank, C. W., Gast, A. P.
1990; 6 (4): 767-770
- **FLUORESCENCE STUDIES OF POLYMER ADSORPTION .3. ADSORPTION OF PYRENE-END-LABELED POLY(ETHYLENE GLYCOL) ON COLLOIDAL POLYSTYRENE PARTICLES** *LANGMUIR*
Char, K., Frank, C. W., Gast, A. P.
1989; 5 (6): 1335-1340
- **ULTRATHIN POLY(METHYLMETHACRYLATE) RESIST FILMS FOR MICROLITHOGRAPHY** *33RD INTERNATIONAL SYMP ON ELECTRON, ION, AND PHOTON BEAMS (33 ISEIPB)*
KUAN, S. W., Frank, C. W., LEE, Y. H., Eimori, T., Allee, D. R., Pease, R. F., Browning, R.
AMER INST PHYSICS.1989: 1745-50
- **PHOTOPHYSICAL STUDIES OF HOMOPOLYMER SOLUBILIZATION IN THE CORE OF BLOCK COPOLYMER MICELLES**
YLITALO, D. A., Yeung, A. S., Frank, C. W.

AMER CHEMICAL SOC.1989: 309-POLY

- **INFRARED AND FLUORESCENCE SPECTROSCOPIC STUDIES OF SELF-ASSEMBLED N-ALKANOIC ACID MONOLAYERS** *LANGMUIR*
Chen, S. H., Frank, C. W.
1989; 5 (4): 978-987
- **FLUORESCENCE STUDIES OF POLYMER ADSORPTION .2. A SIMPLE-MODEL DESCRIBING ADSORBED POLYMER REARRANGEMENT** *LANGMUIR*
Char, K., Frank, C. W., Gast, A. P.
1989; 5 (4): 1096-1105
- **CONSIDERATION OF HYDROPHOBIC ATTRACTIONS IN END-TO-END CYCLIZATION** *MACROMOLECULES*
Char, K., Frank, C. W., Gast, A. P.
1989; 22 (7): 3177-3180
- **A REEVALUATION OF FORCES MEASURED ACROSS THIN POLYMER-FILMS - NONEQUILIBRIUM AND PINNING EFFECTS** *JOURNAL OF CHEMICAL PHYSICS*
Horn, R. G., Hirz, S. J., HADZIIOANNOU, G., Frank, C. W., CATALA, J. M.
1989; 90 (11): 6767-6774
- **POLYMER-CHAIN STRUCTURE IN ULTRATHIN FILMS**
KUAN, S. W., Martin, P. S., Frank, C. W., Pease, R. F.
AMER CHEMICAL SOC.1989: 58-PMSE
- **EFFECT OF THE DEGREE OF IONIZATION OF POLY(METHACRYLIC ACID) ON THE COMPLEX FORMED WITH PYRENE END-LABELED POLY(ETHYLENE GLYCOL)** *MACROMOLECULES*
Oyama, H. T., HEMKER, D. J., Frank, C. W.
1989; 22 (3): 1255-1260
- **FLUORESCENCE DEPOLARIZATION OF CHROMOPHORES IN POLYMERIC SOLIDS** *MACROMOLECULES*
Peterson, K. A., Zimmt, M. B., Fayer, M. D., Jeng, Y. H., Frank, C. W.
1989; 22 (2): 874-879
- **ENERGY MIGRATION IN THE AROMATIC VINYL-POLYMERS .7. APPLICATION OF A ONE-DIMENSIONAL ELECTRONIC EXCITATION TRANSPORT MODEL FOR TRANSIENT FLUORESCENCE OF POLY(2-VINYLNAPHTHALENE) IN ALKYL BENZENE SOLUTION AND POLYSTYRENE BLENDS** *JOURNAL OF PHYSICAL CHEMISTRY*
Tao, W. C., Frank, C. W.
1989; 93 (2): 776-784
- **LITHOGRAPHY AND SPECTROSCOPY OF ULTRATHIN LANGMUIR BLODGETT POLYMER-FILMS** *ACS SYMPOSIUM SERIES*
KUAN, S. W., Martin, P. S., Kosbar, L. L., Frank, C. W., Pease, R. F.
1989; 412: 349-363
- **LITHOGRAPHY AND SPECTROSCOPY OF ULTRATHIN LANGMUIR BLODGETT POLYMER-FILMS** *SYMP AT THE 197TH NATIONAL MEETING OF THE AMERICAN CHEMICAL SOC - POLYMERS IN MICROLITHOGRAPHY : MATERIALS AND PROCESSES*
KUAN, S. W., Martin, P. S., Kosbar, L. L., Frank, C. W., Pease, R. F.
AMER CHEMICAL SOC.1989: 349-363
- **HETEROGENEOUS CONDUCTION PROCESSES IN INTEGRATED-CIRCUIT ENCAPSULATION** *ACS SYMPOSIUM SERIES*
Hoffmann, D. A., Anderson, J. E., BOUSSE, L. J., Frank, C. W.
1989; 407: 321-336
- **PHOTOPHYSICAL STUDIES OF SPIN-CAST POLYMER-FILMS** *ACS SYMPOSIUM SERIES*
Kosbar, L. L., KUAN, S. W., Frank, C. W., Pease, R. F.
1989; 381: 95-111
- **CURE STUDIES OF PMDA-ODA-BASED AND BTDA-ODA-BASED POLYIMIDES BY FLUORESCENCE SPECTROSCOPY** *ACS SYMPOSIUM SERIES*
Wachsman, E. D., Martin, P. S., Frank, C. W.
1989; 407: 26-48

- **MACROMOLECULAR COMPLEX-FORMATION AND POLYMER ADSORPTION ON COLLOIDAL PARTICLES IN AQUEOUS-SOLUTION** *ADVANCES IN CHEMISTRY SERIES*
HEMKER, D. J., Char, K., Oyama, H. T., Gast, A. P., Frank, C. W.
1989; 263-284
- **ULTRATHIN POLYMER-FILMS FOR MICROLITHOGRAPHY** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B*
KUAN, S. W., Frank, C. W., Fu, C. C., Allee, D. R., MACCAGNO, P., Pease, R. F.
1988; 6 (6): 2274-2279
- **OBSERVATION AND MANIPULATION OF POLYMERS BY SCANNING TUNNELLING AND ATOMIC FORCE MICROSCOPY** *JOURNAL OF MICROSCOPY-OXFORD*
DOVEK, M. M., Albrecht, T. R., KUAN, S. W., Lang, C. A., EMCH, R., Grutter, P., Frank, C. W., Pease, R. F., Quate, C. F.
1988; 152: 229-236
- **PHOTOPHYSICAL STUDIES OF MORPHOLOGY OF BLOCK COPOLYMER MICELLES IN SOLUTION**
Yeung, A. S., Frank, C. W.
AMER CHEMICAL SOC.1988: 158-PMSE
- **SYNTHESIS AND CHARACTERIZATION OF TG FOR PYRENE END-LABELED POLYSTYRENE HAVING NO ESTER LINKAGES** *POLYMER*
Tang, W. T., HADZIOANNOU, G., SMITH, B. A., Frank, C. W.
1988; 29 (9): 1718-1723
- **EXCIMER FLUORESCENCE AS A MOLECULAR PROBE OF POLYMER BLEND MISCIBILITY .8. POLYMERIC AND GLASSY SOLVENT HOST MATRICES** *POLYMER*
Tao, W. C., Thomas, J. W., Frank, C. W.
1988; 29 (9): 1625-1634
- **IMAGING AND MODIFICATION OF POLYMERS BY SCANNING TUNNELING AND ATOMIC FORCE MICROSCOPY** *JOURNAL OF APPLIED PHYSICS*
Albrecht, T. R., DOVEK, M. M., Lang, C. A., Grutter, P., Quate, C. F., KUAN, S. W., Frank, C. W., Pease, R. F.
1988; 64 (3): 1178-1184
- **FLUORESCENCE STUDIES OF POLYMER ADSORPTION .1. REARRANGEMENT AND DISPLACEMENT OF PYRENE-TERMINATED POLY(ETHYLENE GLYCOL) ON COLLOIDAL SILICA PARTICLES** *LANGMUIR*
Char, K., Gast, A. P., Frank, C. W.
1988; 4 (4): 989-998
- **EFFECT OF CURE HISTORY ON THE MORPHOLOGY OF POLYIMIDE - FLUORESCENCE SPECTROSCOPY AS A METHOD FOR DETERMINING THE DEGREE OF CURE** *POLYMER*
Wachsman, E. D., Frank, C. W.
1988; 29 (7): 1191-1197
- **FACILE METHOD FOR LABELING POLYSTYRENE WITH VARIOUS FLUORESCENT DYES** *POLYMER*
Tang, W. T., HADZIOANNOU, G., SMITH, B. A., Frank, C. W.
1988; 29 (7): 1313-1317
- **PHOTOPHYSICAL STUDIES OF BLOCK COPOLYMERS - MICELLE MORPHOLOGY IN SOLUTION**
Frank, C. W., Tang, W. T., Jeng, Y. H., Yeung, A. S., HADZIOANNOU, G., Cotts, P. M., SMITH, B. A.
AMER CHEMICAL SOC.1988: 279-POLY
- **PHOTOPHYSICAL STUDIES OF AMORPHOUS ORIENTATION IN POLY(ETHYLENE-TEREPHTHALATE) FILMS** *POLYMER*
HEMKER, D. J., Frank, C. W., Thomas, J. W.
1988; 29 (3): 437-447
- **HYDROPHOBIC ATTRACTION OF PYRENE-END-LABELED POLY(ETHYLENE GLYCOL) IN WATER AND WATER-METHANOL MIXTURES** *MACROMOLECULES*
Char, K., Frank, C. W., Gast, A. P., Tang, W. T.
1987; 20 (8): 1833-1838
- **EFFECT OF THE HYDROPHOBIC INTERACTION IN THE POLY(METHACRYLIC ACID) PYRENE END-LABELED POLY(ETHYLENE GLYCOL) COMPLEX** *MACROMOLECULES*

- Oyama, H. T., Tang, W. T., Frank, C. W.
1987; 20 (8): 1839-1847
- **INTRAMOLECULAR ROTATIONAL MOTION IN BICHROMOPHORIC COMPOUNDS .1. EFFECT OF PRESSURE ON EXCIMER FORMATION IN 1,3-BIS(2-NAPHTHYL)PROPANE IN A SERIES OF LINEAR ALKANES** *JOURNAL OF PHYSICAL CHEMISTRY*
Tao, W. C., Frank, C. W.
1987; 91 (14): 3863-3871
 - **PHOTOPHYSICS OF POLYPHOSPHAZENES IN SOLUTION AND THE SOLID-STATE**
Yeung, A. S., Frank, C. W., Singler, R. E.
AMER CHEMICAL SOC.1987: 191-POLY
 - **COMPLEX-FORMATION BETWEEN POLY(ACRYLIC ACID) AND PYRENE-LABELED POLY(ETHYLENE GLYCOL) IN AQUEOUS-SOLUTION** *MACROMOLECULES*
Oyama, H. T., Tang, W. T., Frank, C. W.
1987; 20 (3): 474-480
 - **COMPLEX-FORMATION BETWEEN POLY(ACRYLIC ACID) AND POLY(ETHYLENE GLYCOL) IN AQUEOUS-SOLUTION** *ACS SYMPOSIUM SERIES*
Oyama, H. T., Tang, W. T., Frank, C. W.
1987; 358: 422-433
 - **EXCIMER FLUORESCENCE STUDIES OF THE THERMAL TRANSITION BEHAVIOR OF POLY-(ORGANOPHOSPHAZENES)**
Yeung, A. S., Frank, C. W., Singler, R. E.
AMER CHEMICAL SOC.1986: 126-POLY
 - **STRUCTURE OF THE POLYION COMPLEX BETWEEN POLY(SODIUM P-STYRENE SULFONATE) AND POLY(DIALLYL DIMETHYL AMMONIUM-CHLORIDE)** *JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS*
Oyama, H. T., Frank, C. W.
1986; 24 (8): 1813-1821
 - **ENERGY MIGRATION IN THE AROMATIC VINYL-POLYMERS .4. BLENDS OF POLY(2-VINYLNAPHTHALENE) WITH POLY(CYCLOHEXYL METHACRYLATE)** *MACROMOLECULES*
Thomas, J. W., Frank, C. W.
1985; 18 (5): 1034-1039
 - **MACROMOLECULAR PAIR CORRELATION-FUNCTIONS FROM FLUORESCENCE DEPOLARIZATION EXPERIMENTS** *JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS*
FREDRICKSON, G. H., ANDERSEN, H. C., Frank, C. W.
1985; 23 (3): 591-599
 - **ENERGY MIGRATION IN THE AROMATIC VINYL-POLYMERS .5. POLY(2-VINYL NAPHTHALENE) AND POLYSTYRENE** *CANADIAN JOURNAL OF CHEMISTRY-REVUE CANADIENNE DE CHIMIE*
SEMERAK, S. N., Frank, C. W.
1985; 63 (6): 1328-1332
 - **FLUORESCENCE STUDIES OF POLYMER BLENDS**
Frank, C. W., Thomas, J. M.
AMER CHEMICAL SOC.1984: 45-PMSE
 - **EXCIMER FLUORESCENCE AS A MOLECULAR PROBE OF POLYMER BLEND MISCIBILITY .6. EFFECT OF MOLECULAR-WEIGHT IN BLENDS OF POLY(2-VINYLNAPHTHALENE) WITH POLY(METHYL METHACRYLATE)** *MACROMOLECULES*
SEMERAK, S. N., Frank, C. W.
1984; 17 (6): 1148-1157
 - **ELECTRONIC EXCITATION TRANSPORT AS A PROBE OF CHAIN FLEXIBILITY** *MACROMOLECULES*
FREDRICKSON, G. H., ANDERSEN, H. C., Frank, C. W.
1984; 17 (8): 1496-1499
 - **ELECTRONIC EXCITED-STATE TRANSPORT AND TRAPPING ON POLYMER-CHAINS** *MACROMOLECULES*
FREDRICKSON, G. H., ANDERSEN, H. C., Frank, C. W.

1984; 17 (1): 54-59

- **EFFECT OF MOLECULAR-WEIGHT ON BLEND MISCIBILITY - A STUDY BY EXCIMER FLUORESCENCE** *ADVANCES IN CHEMISTRY SERIES*
SEMERAK, S. N., Frank, C. W.
1984: 77-100
- **PHOTOPHYSICS OF MISCIBLE AND IMMISCIBLE POLYMER BLENDS**
Thomas, J. W., Frank, C. W.
AMER CHEMICAL SOC.1984: 147-PMSE
- **PHOTOPHYSICS OF EXCIMER FORMATION IN ARYL VINYL-POLYMERS** *ADVANCES IN POLYMER SCIENCE*
SEMERAK, S. N., Frank, C. W.
1984; 54: 31-85
- **EFFECT OF MOLECULAR-WEIGHT ON POLYMER BLEND PHASE-SEPARATION KINETICS** *MACROMOLECULES*
GELLES, R., Frank, C. W.
1983; 16 (9): 1448-1456
- **ELECTRONIC EXCITED-STATE TRANSPORT AND TRAPPING AS A PROBE OF INTRAMOLECULAR POLYMER STRUCTURE** *JOURNAL OF CHEMICAL PHYSICS*
FREDRICKSON, G. H., ANDERSEN, H. C., Frank, C. W.
1983; 79 (7): 3572-3580
- **ELECTRONIC EXCITED-STATE TRANSPORT ON ISOLATED POLYMER-CHAINS** *MACROMOLECULES*
FREDRICKSON, G. H., ANDERSEN, H. C., Frank, C. W.
1983; 16 (9): 1456-1464
- **EXCIMER FLUORESCENCE AS A MOLECULAR PROBE OF BLEND MISCIBILITY - COMPARISON WITH DIFFERENTIAL SCANNING CALORIMETRY .5.** *ADVANCES IN CHEMISTRY SERIES*
SEMERAK, S. N., Frank, C. W.
1983: 757-771
- **NON-EXPONENTIAL TRANSIENT-BEHAVIOR IN FLUORESCENT POLYMERIC SYSTEMS** *MACROMOLECULES*
FREDRICKSON, G. H., Frank, C. W.
1983; 16 (4): 572-577
- **INTERPRETATION OF ELECTRONIC-ENERGY TRANSPORT EXPERIMENTS IN POLYMERIC SYSTEMS** *MACROMOLECULES*
FREDRICKSON, G. H., Frank, C. W.
1983; 16 (7): 1198-1206
- **PHASE-SEPARATION IN POLYSTYRENE POLYVINYL METHYL-ETHER) BLENDS AS STUDIED BY EXCIMER FLUORESCENCE** *MACROMOLECULES*
GELLES, R., Frank, C. W.
1982; 15 (6): 1486-1491
- **ENERGY MIGRATION IN THE AROMATIC VINYL-POLYMERS .2. MISCIBLE BLENDS OF POLYSTYRENE WITH POLYVINYL METHYL-ETHER)** *MACROMOLECULES*
GELLES, R., Frank, C. W.
1982; 15 (3): 741-747
- **ENERGY MIGRATION IN THE AROMATIC VINYL-POLYMERS .3. 3-DIMENSIONAL MIGRATION IN POLYSTYRENE POLYVINYL METHYL-ETHER)** *MACROMOLECULES*
GELLES, R., Frank, C. W.
1982; 15 (3): 747-752
- **EXCIMER FLUORESCENCE AS A MOLECULAR PROBE OF BLEND MISCIBILITY .3. EFFECT OF MOLECULAR-WEIGHT OF THE HOST MATRIX** *MACROMOLECULES*
SEMERAK, S. N., Frank, C. W.
1981; 14 (2): 443-449