

CURRICULUM VITAE -- RAMA BANSIL

CONTACT INFORMATION

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EDUCATION

- Ph.D. 1975, University of Rochester, Rochester, NY. (Physics).
- M.Sc. 1969, Delhi University, India. (Physics).
- B.Sc. (Honors) 1967, Delhi University, India. (Physics).

EMPLOYMENT

- Program Director, Division of Materials Research, Directorate for Mathematical and Physical Sciences, National Science Foundation, Sep. 2007 - Aug. 2009. (Intergovernmental Personnel Act assignment on leave from Boston University).
- Visiting Professor, Dept. of Medicine, Harvard Medical School, Beth Israel Deaconess Medical Center, Sep.-Dec. 2006 (On sabbatical leave from Boston University)
- Professor of Physics, Boston University, Sep. 1997 – present.
- Associate Professor of Physics, Boston University, Sep. 1984 -Aug. 1997.
- Science Scholar and Fellow, Bunting Institute, Radcliffe College, Sep. 1993 - Aug. 1994
- Assistant Professor of Physics, Boston University, Oct. 1976 – Aug. 1984.
- Research Associate, Harvard-M.I.T. Program in Health Sciences and Technology, M.I.T., Cambridge, MA, Oct. 1975 - Sep. 1976.
- Vinton Hayes Fellow in Applied Physics, Division of Engineering and Applied Physics at Harvard University, Cambridge, MA, Oct. 1974 – Sep. 1975.

AUXILIARY AFFILIATIONS and JOINT APPOINTMENTS at BU

- Center for Polymer Studies, Affiliated faculty member.
- Photonics Center, Member, Affiliated faculty member.
- Center of Nanoscience and Nanobiotechnology, Affiliated faculty member.
- Department of Physiology and Biophysics, BU School of Medicine, Joint faculty appointment.
- Molecular and Cell Biology and Biochemistry (MCBB) Program, Affiliated faculty member.
- Materials Science and Engineering, Affiliated faculty member.

HONORS

- Krishna Dave Gold Medal, for obtaining 1st position in Central Board of Secondary Education, Higher Secondary Exam, India, 1964.
- Science Exhibition Prize, Delhi University, 1964 and 1967.
- Science Talent Scholarship, N.C.E.R.T. India, 1964 -1969.
- Vinton Hayes Fellowship, Harvard University, Postdoctoral Research 1974-1975.
- Whitaker Health Sciences Fund Award, M.I.T.-BU collaboration 1978-1980.
- American Cancer Society Junior Faculty Award, 1979-1982.
- Bunting Fellow, Radcliffe College, 1993-1994
- National Lecturer, Sigma Xi Society, 1995-1997.

- Fellow of the American Physical Society, 2001-present.

MEMBERSHIPS AND EXTRAMURAL PROFESSIONAL ACTIVITIES

- Served on NIH Special Study Sections (1981-1982), NIH Site Visit Team (1981),
- Served on NSF Panels (1990, 1998, 1999, 2002) and NSF Site Visit Team (1997, 2003).
- Sigma Xi, Selection Committee for Distinguished Lecturers (1998-2003).
- American Physical Society, Member 1976- present. Elected APS Fellow 2001. Served on APS Fellows Selection DPOLY (2002 and 2003). Secretary/Treasurer of New England Section of APS 2007-2010.
- American Gastroenterological Association, Member 2007.
- Reviewer for many Journals, Text Books, Grant proposals from NSF, DOE, DOD and Beam time requests from X-ray and neutron scattering facilities at NSLS and NCNR.
- Expert Witness Consulting 2007-

SERVICE at BU

- University Promotion and Tenure Committee (2005-06).
- College of Arts and Sciences, Academic Promotion and Tenure Committee (2003-04).
- Molecular and Cellular Biology and Biochemistry, Admissions Committee (1999-).
- University Seed Research Grant Committee (1978-83).
- Seven Year Medical Program, Interview Board (2004-).
- College of Arts and Science, Freshman Advising and Orientation (2003-).
- Women in Science and Engineering (W.I.S.E), Founding Member.
- Physics Department Merit Evaluation Committee (2004-05).
- Served on Several Physics Department Tenure and Promotion Review Committees.
- Condensed Matter Faculty Search Committee (several times, most recent 2005-06).
- Biophysics Expansion and Faculty Search Committee (2005-).
- Biophysics and Soft Condensed Matter Seminars (1997-).

ADMINISTRATIVE EXPERIENCE AT NSF

- Program Director in Division of Materials Research (DMR) at NSF (Sep. 2007-current.) Primary responsibility to manage the Materials Research Science and Engineering Centers (MRSEC: 26 Centers with total budget \$54 Million/year). Managed the 2008 MRSEC competition, and organized site visits to evaluate and continue funding of existing MRSECs. Additional responsibilities: Nanoscale Science and Engineering Centers-- Site Visits and Renewal Evaluation. Partnerships for Research and Education in Materials (PREM) Lead Program Director. PREM awards are for minority serving institutions to partner with NSF DMR funded Centers.

OUTREACH

- *Organized and chaired* "Careers Beyond the Ivory Tower: Options for Women in Science" April 1993 at MIT.
- Organizing committee, speaker and panelist at Pathways 1994-2003, an annual event at BU for high school women with about 400 attendees. 3. Presentations for K-12 Schools.
- *Mentoring women and minorities.* Supervised the Ph. D dissertations of two minority and three female candidates. Mentored several undergraduates, including six women under Research Experiences for Undergraduates (REU) program of NSF. Mentored summer high school students. Participated in Biophysical Society Summer School for Minority Undergraduates. Currently supervising an African American Ph. D candidate.
- Co-organizer of Gender and Science Group at Bunting Institute, Radcliffe College.

- Member of Founding Group for Women in Science and Engineering (W.I.S.E) at BU.

TEACHING

- Graduate: Polymer Physics, Biophysics, Statistical Mechanics
- Undergraduate Physics Majors: Mathematical Physics, Thermodynamics and Statistical Mechanics
- Other Undergraduates: Physics for Engineers, Physics for Life Science Majors, Physics for Seven Year Medical Program, Physics for Environmental Science, BU Core Curriculum Physical Science.
- Interdisciplinary Course Curriculum Development. Virtual Molecular Dynamics Modules for Thermodynamics, Polymer Physics and Biophysics courses.
- Reviewer for Text Books. Introductory Physics, Thermodynamics, Statistical Mechanics, Polymer Physics and Biophysics Text Books.

RESEARCH SUPERVISION

- Graduate: 12 Ph. D (8 Physics, 1 Applied Physics, 2 Chemistry, 1 Biophysics) 4 M.A students.
- Postdoctoral Fellows: 4
- Undergraduate: Over 30 undergraduate students from BU and other Institutions have done research with me supported by NSF REU Program and BU's work-study program.
- Current: Supervising 2 Ph. D (1 Physics, 1 Molecular and Cellular Biology and Biochemistry), 1 Postdoctoral Researcher and 1 Undergraduate student.
- Mentoring Diversity: Supervised Ph. D of 3 women, 1 Hispanic, 1 African and 1 African American.
- International Exchange Students and Scientists: Supervised a Fulbright Fellow from Germany, a Ph.D student from Roskilde University, Denmark, and an undergraduate from Hungary. Two Czech scientists are regular visitors, and a Professor from Spain spent a sabbatical with me.
- Ongoing Collaboration on Biophysics research with National Institutes of Health, and with Harvard Medical School, Div. of Gastroenterology.

GRANTS

- Funded by NSF DMR Polymers Program (1982-present as PI, prior to that as co-PI on joint grant to Center of Polymer Studies). Total \$2.25M. Current award 2008 - 2011: \$345K.
- NSF International Program U.S. Italy Program, 1989-1995, co-PI on joint award). Total: \$13K.
- NSF International Program U.S. Czech Program, 1991-2000. Total: \$93K.
- NIH/NIDDK award (1993-1996 and 2000-2003). (Co-PI with Dr. N. H. Afdhal, M.D., Beth Israel Deaconess Medical Center, Harvard Medical School.) Total for both awards \$1.4 M.
- Petroleum Research Fund, ACS-PRF (1990-1992 and 2001-2004). Total \$100K.
- Whitaker Health Science Fund for BU MIT collaboration (1978-1980). \$30K.
- Senior Investigator on Institutional Training Grants: NSF AAT Learning Science through Guided Discovery–Water and Molecular Networks (1990-1995), Graduate Assistance in Area of National Need (GAANN to BU Photonics 1995-1998), NIH Predoctoral Training Grant (1994-99).
- Industry funding from Gillette (1982-1985), British Petroleum (1990-1993), Millipore (1997-2000), Amgen (2008). Total \$500K.
- American Cancer Society, Junior Faculty Fellowship, 1979-1982: \$75K.
- Bunting Fellowship, Radcliffe College, 1993-1994: \$31K.

- Vinton Hayes Fellowship, Harvard University, 1974-1975. \$12K.
- Beam time at National Synchrotron Light Source, Brookhaven National laboratory and intense Pulsed Neutron Source, Argonne National Laboratory (regularly since 1992). This is awarded through competitively reviewed applications.

PUBLICATIONS

- [1] R. Bansil, J. Herzfeld and H. E. Stanley, "Hemoglobin Kinetics and the Effect of Organic Phosphates," *Science* 186, 929-932 (1974).
- [2] H. E. Stanley, I. M. Asher, K. J. Rothschild, G. D. J. Phillies, E. B. Carew, R. Bansil, I. A. Michaels, "Resonance and non-resonance Raman Spectroscopy: A Probe of Peptide and Protein Conformation in Peptides: Chemistry, Structure and Biology (Proceedings of the Fourth American Peptide Symposium), R. Walter and J. Meienhofer, Eds., Ann Arbor Scientific Publishers, Inc., 277-245 (1975).
- [3] R. Bansil, J. Herzfeld and H. E. Stanley, "Kinetics of Cooperative Ligand Binding in Proteins: The Effects of Organic Phosphates on Hemoglobin Oxygenation," *J. Mol. Biol.* 103, 89-126 (1976).
- [4] R. Bansil, I. V. Yannas and H. E. Stanley, "Raman Spectroscopy: A Structural Probe of Glycosaminoglycans," *Biochim. Biophys. Acta* 541, 535-542 (1978).
- [5] H. E. Stanley, R. Bansil and J. Herzfeld, "Mechanisms for the Modulation of Hemoglobin Oxygenation," in *Metal Ions in Biological Systems*, Vol. 7, Chap. 8, Ed. H. Sigel, Marcel Dekker, Inc., N.Y. (1978).
- [6] R. Bansil, J. Day, M. Meadows, D. Rice, and E. Oldfield "Raman Spectroscopy of Specially Deuterated Phospholipid Bilayers," *Biochemistry* 19, 1938-1943 (1980).
- [7] R. Bansil and M. K. Gupta, "Effect of varying crosslinking density in Polyacrylamide," *Ferroelectrics* 30, 63-72 (1980).
- [8] M. Gupta and R. Bansil, "Laser Raman Spectroscopy of Polyacrylamide," *Jour. Polymer Science, Physics Ed.* 19, 353-360 (1981).
- [9] M. K. Gupta and R. Bansil, "Raman Spectroscopy as a Structural Probe of Polyacrylamide Gels," *Polymer Preprints* 22, [1] 192-193 (1981).
- [10] M. K. Gupta and R. Bansil, "Effect of varying catalyst on polymerization of acrylamide," *Polymer Preprints* 22, [2] 375-376 (1981).
- [11] R. Bansil, J. Wiafe-Akenten and J. Taaffe, "Raman Spectroscopy of Supercooled Water," *J. Chem. Phys.* 76, 2221-2226 (1982).
- [12] J. Wiafe-Akenten and R. Bansil, "Intermolecular coupling in HOD solutions" *J. Chem. Phys.* 78, 7132-7137 (1983).
- [13] S. Krishnamurthy and R. Bansil, "Nucleation and growth in a polymer solution,"

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[16] R. Bansil and M. K. Gupta, "Effects of varying TEMED on the polymerization of acrylamide," *J. Polymer Sci., Polymer Letters Ed.*, 21, 969 (1983).

[17] R. Bansil, H. J. Herrmann and D. Stauffer, "Computer simulation of kinetics of gel formation by addition polymerization in the presence of a solvent," *Macromolecules* 17, 998-1003 (1984).

[18] R. Bansil, J. Wiafe-Akenten and S. Krishnamurthy, "Laser Raman spectroscopy of supercooled water," in *Proc. of Conf. on Lasers as Reactants and Probes in Chemistry* (Howard University Press, Washington D.C. (1985).

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- [37] K. R. Bhaskar, D. Gong, R. Bansil, S. Pajevic, J. A. Hamilton, B. S. Turner and J. T. LaMont "Profound Increase in Viscosity and Aggregation of Pig Gastric Mucin at Low pH" *Am. J. of Physiology: Gastroenterology and Liver Physiology*, G827 (1991).
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- [46] F. Sciortino, R. Bansil, H. E. Stanley and P. Alstrom ``Intereference of Phase Separation and Gelation: A zeroth-order model" *Phys Rev E* 47, 4615 (1993).
- [47] S. C. Glotzer, R. Bansil, P. D. Gallagher, M. F. Guyre, F. Sciortino and H. E. Stanley ``Physical Gelation and Microphase Separation in Multiblock Copolymers" *Physica A* 201, 482 (1993).
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- [49] R. Bansil ``Phase Separation in Polymer Solutions and Gels" *J. de Physique IV (Colloque C1)* 3, 225 (1993).
- [50] R. Bansil, S. Pajevic, X. Cao, K. R. Bhaskar, J. T. LaMont, N. H. Afdhal and N. Niu ``Dynamic light scattering studies of mucin" in *Static and Dynamic Light Scattering in Medicine and Biology*. (Editors: R.J. Nossal, R. Pecora and A.V. Priezhev, SPIE Proceedings 188425 (1993).
- [51] F. Mallamace, N. Micali, C. Vasi, R. Bansil, S. Pajevic S and F.Sciortino, ``Light Scattering Studies in Crosslinked Gels: Evidence of a Microphase Separation" *Phys. Rev. E* 48, 4501 (1993).
- [52] J. Lal, J. Bastide, R. Bansil and F. Boue', ``The Behavior of free linear chains of polystyrene in a network of methylmethacrylate in toluene" *Macromolecules* 26, 6092 (1993).
- [53] J. Lal, J. Bastide, R. Bansil and F. Boue', ``The revealing of heterogeneities by free linear chains in a network" *Soft Order in Physical Systems* (Editors: R. Bruinsma and Y. Rabin) *Proceedings of Les Houches School on Soft Order in Physical Systems* Feb. 1993.
- [54] R. Bansil, H. E. Stanley and J. T. LaMont, `` Mucin Biophysics" *Annual Rev. of Physiology* 57, 635 (1995).
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Multicomponent Polymer Systems—Phase Behavior, Dynamics and Applications" Editors: K.I. Winey, M. Dadmun, C. Leibig, R. Oliver. MRS Proceedings, Vol. 856E, BB8.6 (2004).

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[91] Yongsheng Liu, Huifen Nie, Rama Bansil, Milos Steinhart, Joona Bang and Timothy P. Lodge, "Kinetics of disorder-to-fcc phase transition via an intermediate bcc state" *Phys. Rev. E* 73, 061803 (2006).

[92] H. Fang, L. Qiu, E. Vitkin E, M.M. Zaman, C. Andersson, S. Salahuddin, L.M Kimerer, P.B. Cipollini, M.D. Modell, B.S. Turner, S. Keates, I. Bigio, I. Itzkan, S.D. Freedman, R. Bansil, E.B. Hanlon, L.T. Perelman. "Confocal light absorption and scattering spectroscopic microscopy", *Applied Optics* 46(10),1760-9 (2007).

[93] J.P. Celli, B.S. Turner BS, N.H. Afdhal, R. Ewoldt, G.H. McKinley, R. Bansil, S. Erramilli. "Rheology of Gastric Mucin Exhibits pH-Dependent Sol-Gel Transition". *Biomacromolecules* 8, 1580-1586 (2007).

[94] Yongsheng Liu, Minghai Li, Milos Steinhart, Rama Bansil, "Kinetics of phase transition from lamellar to hexagonally packed cylinders for a triblock copolymer in a selective solvent". *Macromolecules* 40, 9482-9490 (2007).

[95] Minghai Li, Huifen Ni, Yongsheng Liu, Milos Steinhart, Rama Bansil, "Kinetics of HEX-BCC Transition of Cylinders to Spheres: Comparison of Time-resolved SAXS data with a Model of Coupled Anisotropic Fluctuations." *Macromolecules* 40, 9491-9502 (2007).

[96] J.P. Celli, B.S. Turner, N.H. Afdhal, S. Keates, I. Ghiran, C.P Kelly, R.H. Ewoldt, G.H. McKinley, P. T.C. So, S. Erramilli, R. Bansil "Helicobacter pylori moves through mucus by reducing mucin viscoelasticity" *Proc. Natl. Acad. Sci* 106, 14321-14326 (2009).

[97] Urbanc B, Turner BS, and Bansil R, Folding of Pig Gastric Mucin Non-glycosylated Domains: A Discrete Molecular Dynamics Study. *Preprint available on Condensed Matter Preprints* <http://arxiv.org/abs/0911.0371v1>

TALKS AT MEETINGS, SEMINARS AND COLLOQUIA

- [1] INVITED TALK: 11th Fed. European Biochemical Society Meeting, Copenhagen, August 1977.
- [2] CONTRIBUTED POSTER: Gordon Conference on Ion Containing Polymers, July 1979.
- [3] CONTRIBUTED POSTER: International Conference on New Frontiers in Polymer Science and Polymer Technology, Madras [INDIA], January 1980.
- [4] INVITED TALK: Conference on Associated Liquids and Structure of Water, Pisa [ITALY], March 1982.
- [5] CONTRIBUTED POSTER: Gordon Conference on Liquid Water and Aqueous Solutions, August 1982.
- [6] CONTRIBUTED POSTER: VIIIth International Conference on Raman Spectroscopy, Bordeaux [FRANCE], September 1982.
- [7] CONTRIBUTED PAPER: Institute of Theoretical Physics (Workshop on Dynamics of Polymers), Santa Barbara, December 1982.
- [8] INVITED TALK: Workshop on Scaling Phenomena in Disorderly Growth Process, Exxon Research Laboratories, Princeton, N.J. September 1983
- [9] INVITED TALK: Gordon Conference on "Water and Aqueous Solutions" New London, NH, August 4-8, 1986.
- [10] SEMINAR: April 1974 (University of Oregon, Eugene), "Cooperativity in Hemoglobin."
- [11] SEMINAR: October 1975 (Harvard Univ., Division of Engineering and Applied Science), "Kinetics of hemoglobin."
- [12] COLLOQUIUM: October 1976 (Boston University, joint colloquium with H. E. Stanley and K. J. Rothschild), "Some problems in biological physics."
- [13] SEMINAR: August 1976 (All-India Institute of Medical Sciences, India), "Cooperativity in biological systems."
- [14] SEMINAR: October 1977 (Solid State Seminar, Boston University), "Raman spectroscopy: A structural probe of polysaccharides."
- [15] SEMINAR: May 1980 (Shriners Burns Institute, Mass. General Hospital), "Raman spectroscopy of biological molecules."
- [16] COLLOQUIUM: November 1981 (Northeastern University, Boston), "Phase transitions in biological membranes."

- [17] SEMINAR: August 1982 (Helsinki University, Finland), ``Raman spectroscopy and structure of water."
- [18] COLLOQUIUM: March 1983 (Boston University, Physics Colloquium), ``Physics of gels."
- [19] COLLOQUIUM: April 1983 (Clark University, Worcester, Mass.), ``Physics of gels."
- [20] COLLOQUIUM: December 1985 (Delhi University, Delhi, India), ``Gelation kinetics and phase transition."
- [21] COLLOQUIUM: December 1985 (Indian Institute of Technology, Kanpur, India), ``Physics of gels."
- [22] CONTRIBUTED TALK: June 1986 (Quasielastic Light Scattering Conference, Worcester Polytechnic Institute) ``Movement of Particles in Gels."
- [23] CONTRIBUTED TALK: March 1988 (Static and Dynamic Light Scattering Conference, Kiel, W. Germany), ``Probe Diffusion in Gels."
- [24] COLLOQUIUM: December 1988 (National Physical Laboratory, New Delhi, India), ``Diffusion in gels."
- [25] COLLOQUIUM: January 1990 (Northeastern Univ., Boston MA), ``Diffusion in gels"
- [26] SEMINAR: February 1990 (Exxon Research and Engineering, Annandale. N.J.), ``Spinodal decomposition kinetics in polymer solutions and gels"
- [27] SEMINAR: March 1990 (UCLA, Chemical Physics Seminar), ``Spinodal Decomposition in polymer solutions"
- [28] COLLOQUIUM: May 1990 (Univ. of Lowell, Lowell, Mass), ``Diffusion in gels"
- [29] COLLOQUIUM: August 1990 (Jawahar Lal Nehru University, New Delhi , India), ``Physics of polymer gels"
- [30] SEMINAR: December 1990 (National Institute of Standards Technology, Gaithersburg, Maryland) ``Spinodal decomposition in polymer solutions"
- [31] INVITED TALK: December 1991 (Holy Cross College) ``Careers in Medicine and Biology for Physical Science Majors"
- [32] COLLOQUIUM: April 1992 (Northeastern Univ., Boston MA), ``Phase separation kinetics in polymers and gels"
- [33] INVITED TALK: July 1992 (Workshop on Complex Liquid Systems, Polistena, Italy) ``Kinetics of Phase Separation in Polymer Gels"
- [34] INVITED TALK: July 1992 (34th IUPAC International Symposium on Macromolecules, MACRO 92, Prague, Czechoslovakia, July 1992) ``Diffusion of Polymers in Gels"

- [35] SEMINAR: October 1992 (Univ. of Mass., Amherst) "Kinetics of Phase Separation in Polymers"
- [36] INVITED TALK: Symposium on Static and Dynamic Light Scattering in Medicine and Biology. SPIE Meeting on Biomedical Optics. Los Angeles, Calif. Jan. 1993. "Dynamic Light Scattering Studies of Mucin"
- [37] INVITED MAIN LECTURE: 33rd Microsymposium on Optics and Dynamics of Polymers, PRAGUE, Czechoslovakia, July 1993. "Kinetics of Spinodal Decomposition in Polymer Solutions and Gels"
- [38] CONTRIBUTED TALK: Les Houches Conference on Soft Order in Physical Systems, Les-Houches, France, Feb. 1993. "The Revealing of Heterogeneities by Free Linear Chains in a Network"
- [39] COLLOQUIUM: Bunting Institute, Radcliffe College, Dec. 1993. "Why the Stomach Doesn't Digest Itself?"
- [40] COLLOQUIUM: Physics Dept., Brandeis University, Jan. 1994. "Why the Stomach Doesn't Digest Itself and what Does This Have to do With Gels?"
- [41] INVITED TALK: Gordon Conference on Macromolecular and Polyelectrolyte Solutions, Oxnard Calif., Feb. 1994 "The Aggregation and Gelation of Mucin"
- [42] INVITED TALK: First International Conference on Scaling Concepts and Complex Fluids, Catanzaro, Italy July 1994 "Mucin: Aggregation and Colloidal Interactions Relevant to some Biomedical Problems"
- [43] INVITED LECTURE: Chemistry Dept. Undergraduate Seminars, Boston University, Dec. 1994 "Why the Stomach Doesn't Digest Itself"
- [44] COLLOQUIUM: Physics Dept., Univ. of Vermont, March 1995. "Kinetics of Phase Transitions in polymers"
- [45] SEMINAR: Millipore Corp., March 1995. "The physics of making polymer membranes"
- [46] PUBLIC LECTURE: Sigma Xi, Univ. of New Mexico, April 1995. "Why the Stomach Doesn't Digest Itself"
- [47] PUBLIC LECTURE: Sigma Xi, State Univ. of New York at Oswego, April 1995. "Why the Stomach Doesn't Digest Itself"
- [48] INVITED TALK: Colloid and Interface Science: Trends and Applications, Puerto Rico, May 1995. "Kinetics of phase transitions in polymer gels"
- [49] INVITED TALK: 36th Microsymposium: High Swelling Gels, Prague, Czech Republic, July 1995. "Gelation and Aggregation of Mucin in Relation to the Stomach Protective Barrier"
- [50] SEMINAR: Univ. of Graz, Austria, July 1995. "Kinetics of phase transitions in polymer gels"

- [51] INVITED TALK: Institute of Physics, Chinese Academy of Science, Beijing, August 1995. "Why the Stomach Doesn't Digest Itself"
- [52] COLLOQUIUM: Kyushu University, Fukuoka, Japan, August 1995. "Kinetics of phase transitions in polymer gels"
- [53] COLLOQUIUM: Kyoto Institute of Technology, Kyoto, Japan, August 1995. "Kinetics of phase transitions in polymer gels"
- [54] SEMINAR: Univ. of Nagoya, Nagoya, Japan, August 1995. "Kinetics of phase transitions in polymer gels"
- [55] COLLOQUIUM: Aoyama-Gakuin Univ., Tokyo, Japan, August 1995. "Kinetics of phase transitions in polymer gels"
- [56] COLLOQUIUM: Clark University, Mass., October 1995. "Kinetics of Phase transitions in polymer gels"
- [57] SEMINAR: University of Pittsburgh, November 1995. "Kinetics of Phase transitions in polymer gels"
- [58] PUBLIC LECTURE: Sigma Xi, Carnegie Mellon University, November 1995. "Gels--from Jello to Gelcaps"
- [59] SEMINAR: Jawahar Lal Nehru University, New Delhi, India, December 1995. "Kinetics of Phase transitions in polymer gels"
- [60] CONTRIBUTED POSTER: Gordon Conference on Colloids, Polyelectrolytes and Macromolecular Solutions, Ventura, Calif. Feb. 1996.
- [61] CONTRIBUTED PAPER: Annual Meeting of Biophysical Soc., Baltimore, Md. Feb. 1996. "Depolarized Dynamic Light Scattering Study of Mucin"
- [62] CONTRIBUTED PAPER: American Physical Society Meeting, St. Louis, March 1996. "Light Scattering Studies of Spinodal Decomposition Kinetics in NIPA gels".
- [63] Sigma Xi LECTURE: New York State Experimental Agricultural Station and Hobart and Smith Colleges, May 1996. "Why the Stomach Doesn't Digest Itself"
- [64] SEMINAR: Eastman Kodak Research Labs, Rochester, NY, May 1996. "Kinetics of phase transitions in polymer gels"
- [65] CONTRIBUTED PAPER: American Gastroenterological Assoc. Annual Meeting, San Francisco, May 1996. "Effect of Gallbladder Mucin and Polymer Solutions on Lipid Vesicle Diffusion"
- [66] INVITED LECTURE: International Summer School in Physics 'Enrico Fermi' Varenna, Italy, July 1996. "Spinodal Decomposition in Polymer Gels"
- [67] INVITED LECTURE: Physics Dept. Univ. of Milano, Italy, July 1996 "Spinodal Decomposition in Polymer Gels"

- [68] COLLOQUIUM: University of Mass. at Lowell, September 1996. "Kinetics of Phase transitions in polymer gels"
- [69] COLLOQUIUM: Worcester Polytechnic Institute, Mass., October 1996. "Kinetics of Phase transitions in polymer gels"
- [70] Sigma Xi LECTURE: Uniroyal Chemical Company, Oct. 1996. "Why the Stomach Doesn't Digest Itself"
- [71] Sigma Xi LECTURE: William Paterson College, Dec. 1996. "Why the Stomach Doesn't Digest Itself"
- [72] Sigma Xi LECTURE: Gustavus Adolphus College, March 1997. "Why the Stomach Doesn't Digest Itself"
- [73] Sigma Xi LECTURE: Quinnipiac College, April 1997. "Why the Stomach Doesn't Digest Itself"
- [74] INVITED LECTURE: International workshop in Phase Transitions in Complex Systems, Messina, Italy, July 1997. "Kinetics of Phase Separation in Multiblock Copolymer Solutions"
- [75] INVITED TALK: Third International Discussion Meeting on Relaxations in Complex Systems, Vigo, Spain July 1997. "A model for Gelation and Aggregation of Mucin based on polarized and Depolarized Dynamic Light Scattering"
- [76] INVITED LECTURE: Instituto de Estructura de la Materia, Madrid, Spain. July 1997. "Kinetics of Phase transitions in Gels"
- [77] COLLOQUIUM: Pharmacia Dept., Complutense Univ., Madrid, Spain July 1997. "Why the stomach doesn't digest itself?"
- [78] INVITED LECTURE: Summer Workshop on Biophysics and Polymers, Rowland Inst. of Science, Cambridge, Ma. Aug. 1997. "Fundamentals and applications of light scattering in polymers"
- [79] COLLOQUIUM: Physics Dept., Univ. of Pennsylvania, PA. Nov. 1997. "A Physicist's view of how the stomach doesn't digest itself"
- [80] COLLOQUIUM: Physics Dept., Amherst College, Amherst MA. Feb. 1998. "A Physicist's view of how the stomach doesn't digest itself"
- [81] COLLOQUIUM: Physics Dept., University of Prince Edward Island, Prince Edward island, Canada. Mar. 1998. "A Physicist's view of how the stomach doesn't digest itself"
- [82] INVITED TALK: Symposium on Nonequilibrium Phenomena in Colloids, American Chemical Society National Meeting, Dallas, Texas, March 1998. "Kinetics of spinodal decomposition in Gels"

[83] CONTRIBUTED PAPER: G. Liao, R. Bansil, A. Xenopoulos, "Transition Between Nucleation and Spinodal Decomposition Mechanisms in a Membrane-forming Polymer Solution" American Physical Soc., Bull. Am. Phys. Soc., 43, 67 (1998).

[84] CONTRIBUTED POSTER: X. Cao, R. Bansil, K. R. Bhaskar, B. S. Turner, J. T. LaMont, N. H. Afdhal, "pH dependent conformational changes of mucins: why the stomach has a gel and the gallbladder does not." Gastroenterology 1998:114; 84A. Selected for the Presidents' Plenary Poster Session.

[85] CONTRIBUTED TALK: 79th Statistical Mechanics Meeting, Rutgers, N.J., May 1998. "Kinetics of Spinodal Decomposition in Gels"

[86] INVITED LECTURE: Summer Workshop for High School Teachers, Institute for Science Instruction and Study (ISIS), Southern Conn. State Univ., New Haven, Conn. July 1998.

[87] CONTRIBUTED TALK: American Physical Society Centennial Meeting, Atlanta. March 1999. "Pattern Formation in the Drying of Gels"

[88] CONTRIBUTED TALK: American Physical Society Centennial Meeting, Atlanta. March 1999. "Concentration Dependence of Dynamics of Triblock Copolymer Solutions in a Selective Solvent"

[89] CONTRIBUTED TALK: 4th Liquid Matter Conference, Granada Spain, July 1999 "Pattern Formation in the Drying of Gels"

[90] INVITED TALK: NATO Advanced Study Institute, Structure and Dynamics Of Polymer and Colloidal Systems, Sep. 1999.

[91] COLLOQUIUM: Physics Dept., Dartmouth College, "Kinetics of Phase Separation in Polymer Gels" Oct. 1999.

[92] CONTRIBUTED TALK: MRS Meeting, Symposium on Complex Fluids, Boston, Dec. 1999.

[93] COLLOQUIUM: Physics Dept., Jawahar Lal Nehru University, New Delhi, India. Feb. 2000.

[94] CONTRIBUTED POSTER: American Physical Society Centennial Meeting, Minneapolis, March 2000.

[95] COLLOQUIUM: Chemistry Dept., University of North Carolina, Chapel Hill, "Biophysics of why the stomach doesn't digest itself" April 2000.

[96] CONTRIBUTED POSTER: Gordon Research Conference on Polymer Physics, Conn. College, July 2000.

[97] CONTRIBUTED POSTER: Biophysical Society Meeting, Boston, Feb. 2001 "Atomic Force Microscopy of gastric mucin"

[98] CONTRIBUTED TALK: American Physical Society Meeting, Seattle, March 2001 "Kinetics of transitions in multiblock copolymers in selective solvents".

- [99] CONTRIBUTED POSTER: American Physical Society Meeting, Seattle, March 2001
“Atomic Force Microscopy of gastric mucin”
- [100] INVITED TALK: Rutgers Statistical Mechanics Meeting, May 2001, “The biophysics of mucin and why the stomach doesn’t digest itself”
- [101] INVITED LECTURE: Squishy Physics Seminar Series, Harvard University, July 2001, “The biophysics of mucin and why the stomach doesn’t digest itself”
- [102] INVITED TALK: 20th Discussion Conference, Scattering Methods for the investigation of polymers, Prague, Czech Republic July 2001 “Kinetics of order-disorder transitions in multiblock copolymers”
- [103] COLLOQUIUM: Dept. of Physics, Univ. of Leeds, U.K., July 2001 “The biophysics of mucin and why the stomach doesn’t digest itself”
- [104] CONTRIBUTED TALK: American Physical Society Meeting, Indianapolis. March 2002. “Structure and Dynamics of Pentablock Copolymer Solutions in a Selective Solvent”
- [105] CONTRIBUTED TALK: American Physical Society Meeting, Indianapolis. March 2002. “Small Angle Neutron Scattering Studies of Mucin”
- [106] CONTRIBUTED POSTERS: Gordon Research Conference on Polymer Physics, Salve Regina University, Rhode Island. August 2002
- [107] INVITED TALK: India and Abroad: Condensed matter Physics Workshop, Calcutta, Jan. 2003 “Gelation of mucin”
- [108] COLLOQUIUM: Mat. Sci. Institute, Madras, India “Gelation of Mucin” Jan. 2003
- [109] COLLOQUIUM: Dept. of Atomic Energy Reactor Center, Kalpakkam, India “Phase Transitions in Block Copolymers” Jan. 2003
- [110] INVITED TALK: Workshop on Polymer Rheology, Univ. of Mass., Amherst, MA, “Why the Stomach Doesn’t Digest Itself: A New Look at an Old Problem” May 2003
- [111] INVITED TALK: Institute of Physics Workshop on Biopolymers, London, August 2003 “Structure of mucin glycoprotein”
- [112] CONTRIBUTED TALK: American Physical Society Meeting, Austin, Texas. March 2003. “Association Behavior of Heptablock Copolymers in Selective Solvents” Bull. Am. Phys. Soc. 48, 162 (2003)
- [113] CONTRIBUTED TALK: American Physical Society Meeting, Austin, Texas. March 2003. “Small Angle light scattering and microscopy study of agarose gels in an electric field” Bull. Am. Phys. Soc. 48, 870 (2003).

- [114] CONTRIBUTED TALK: American Physical Society Meeting, Austin, Texas. March 2003. "Kinetics of Order-Order Transition OF Triblock Copolymer Micelles in a Selective Solvent for the Middle Block" Bull. Am. Phys. Soc. 48, 1073 (2003).
- [115] CONTRIBUTED POSTER: Gordon Research Conference on Polyelectrolyte and Macromolecular Solutions, "Kinetics of Order-Order Transition OF Triblock Copolymer Micelles in a Selective Solvent for the Middle Block" Ventura, CA. Feb. 2004
- [116] CONTRIBUTED TALK: American Physical Society Meeting, Montreal, Canada. March 2004. "Kinetics of HEX-BCC Transitions in Triblock Copolymer Solution in Selective Solvent for the Middle Block" Bull. Am. Phys. Soc. 49, 501 (2004).
- [117] INVITED LECTURE: Marblehead High School. April 2004. Why the stomach doesn't digest itself?
- [118] CONTRIBUTED TALK: STATPHYS Meeting IUPAP, Bangalore, India. July 2004. "Kinetics of HEX-BCC Transitions in Triblock Copolymer Solution in Selective Solvent for the Middle Block"
- [119] INVITED TALK: National Chemical Laboratory, Pune, India. July 2004. "Kinetics of HEX-BCC Transitions in Triblock Copolymer Solution in Selective Solvent for the Middle Block"
- [120] INVITED TALK: Bhabha Atomic Research Center, Mumbai, India. July 2004. "Kinetics of HEX-BCC Transitions in Triblock Copolymer Solution in Selective Solvent for the Middle Block"
- [121] INVITED TALK: Tata Institute for Fundamental Research, Mumbai, India. July 2004. "Why the stomach doesn't digest itself?"
- [122] CONTRIBUTED TALK: Materials Research Society, Fall Meeting, Boston, Dec. 2004. "Multi-Block Copolymers in Selective Solvent: A Brownian Dynamics Simulation" in Symposium BB Multicomponent Polymer Systems—Phase Behavior, Dynamics and Applications"
- [123] INVITED TALK: Delivery of Functionality in Complex Food Systems, NESTLE, Lausanne, Switzerland, Jan. 2005 " A Biophysical Answer to the Puzzle of why the Stomach Doesn't Digest Itself"
- [124] CONTRIBUTED TALK: American Physical Society Meeting, Los Angeles, CA. March 2005. "Brownian Dynamics Simulation of Multiblock Copolymers in Selective Solvents," Yongsheng Liu, Huifen Nie, Rama Bansil, Bull. Am. Phys. Soc. (2005).
- [125] CONTRIBUTED TALK: American Physical Society Meeting, Los Angeles, CA. March 2005. " Kinetics of BCC-FCC Transition in SI Diblock Copolymer Micelles in a Selective Solvent" Rama Bansil, Yongsheng Liu, Huifen Nie, Milos Steinhart, Joona Bang, Timothy P. Lodge, Bull. Am. Phys. Soc. (2005).
- [126] INVITED TALK: 44th Microsymposium Prague Meetings on Macromolecules: Polymer Gels and Networks, Prague, Czech Republic: 10-14 July 2005 "Effect of electrophoretic ion migration on the structure of agarose gels".

- [127] INVITED TALK: New England Section APS and AAPT Meeting, Burlington Vermont. Oct. 2005 “Gelation : How Does it Prevent the Stomach From Digesting Itself”
- [128] COLLOQUIUM: Dept. of Physics, University of Memphis, Nov. 2005
“Gelation : How Does it Prevent the Stomach From Digesting Itself”
- [129] INVITED TALK: Materials Research Society Fall Meeting, Symposium on Biomimetic Polymers and Gels, Nov. 28-Dec. 1, 2005 “pH dependent Gelation of Gastric Mucin”
- [130] INVITED TALK: Condensed Matter Seminar, Dept. of Physics, Brown University, Mar. 2006 “Gelation : How Does it Prevent the Stomach From Digesting Itself”
- [131] INVITED TALK: Seminar, Laboratory for Integrative and Molecular Biophysics, NICHD, NIH May. 2006 “Gelation of Mucin and Its Impact on H. pylori Motility”
- [132] CONTRIBUTED TALK: American Physical Society Meeting, Baltimore, MD. March 2006. " Kinetics of Transition between HEX and Lamellar Phases in a triblock copolymer solution in a selective solvent” Yongsheng Liu, Rama Bansil, Milos Steinhart, Bull. Am. Phys. Soc. (2006).
- [133] CONTRIBUTED TALK: American Physical Society Meeting, Baltimore, MD. March 2006. " “Kinetics of HEX-BCC Transition of Cylinders to Spheres: Comparison of Time-resolved SAXS data with a Model of Coupled Anisotropic Fluctuations” Rama Bansil, Minghai Li, Milos Steinhart, Bull. Am. Phys. Soc. (2006).
- [134] INVITED TALK: 45th Microsymposium Prague Meetings on Macromolecules: Structure and Dynamics of Self-organized Macromolecular Systems: Prague, Czech Republic: 9-13 July 2006 “Kinetics of Order-Order Transitions between Cylinders, Spheres and Lamella: Comparison of Time-resolved SAXS data with a Model of Coupled Anisotropic Fluctuations ”.
- [135] INVITED TALK: XV International Materials Research Congress, Symposium 10: “New Trends in Polymer Chemistry and Characterization”. Cancun, Mexico, Aug. 20-24, 2006 “Kinetics Of Order-Order Transitions Between Lamellar And Cylindrical Phases In Block Copolymers In Selective Solvents”.
- [136] SEMINAR: Condensed Matter Seminar, Boston University, Oct. 2006.” Kinetics of Order-Order Phase Transitions Between Sheets, Cylinders and Spheres in Block Copolymers”
- [137] DISTINGUISHED SCIENCE LECTURE: Coast Guard Academy, New London, CT. Nov. 6, 2006 “Gelation : How Does it Prevent the Stomach From Digesting Itself”
- [138] INVITED TALK: Pan American Scientific Institute (PASI) : From Disordered systems to complex systems. Mar Del Plata, Argentina, Dec. 2006. “Mucin Gels and Motility of the Ulcer Causing Bacterium, H. Pylori”
- [139] COLLOQUIUM: Dept. of Physics, University of Mass., Lowell, MA Mar. 2007
“Gelation : How Does it Prevent the Stomach From Digesting Itself”
- [140] INVITED TALK: National Science Foundation, Div. of Materials Research, Arlington, VA. May 2007, “My Vision of Research in Materials”

[141] INVITED SEMINAR: Center for Interdisciplinary Research in Complex Systems (CIRCS), Northeastern University, Boston, MA. Dec. 2007. "Biophysics of Mucin Gels"

[142] INVITED SEMINAR: Dept. of Chemistry and Chemical and Biology, Rensselaer Polytechnic Institute, Feb. 2008. "Gelation of Mucin--A mechanism for protecting the stomach from digesting itself"

[143] INVITED PLENARY TALK: Food Colloids 2008 Le Mans, France April 2008. "Gelation of Mucin-- Protecting the stomach from digesting itself"