Dr. Vladimir V. Tsukruk

Regents Professor and Deans Professor of Engineering, School of Materials Science and Engineering
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CURRENT DUTIES

Vladimir V. Tsukruk is an expert in the cross-disciplinary field of materials science and nanotechnology with an emphasis on surface and interfacial phenomena, responsive polymers, biopolymer and bioinspired nanomaterials, hybrid, hard-soft nanomaterials and their multilength-scale characterization with advanced scanning probe microscopy approaches. He is a tenured Professor at School of Materials Science and Engineering (since 2006) and School of Polymers, Textile, and Fibers (2006-2010), a founding Director of Microanalysis Center (2008-present) and a founding co-Director of GT Air Force Center of Excellence on BIONIC (2009-2015). He supervises a sustainable research group of about 20 graduate students, postdoctoral researchers, and visitors supported by current projects funded by National Science Foundation, Air Force Office of Scientific Research, Department of Energy, and private industries. During his tenure at Georgia Tech, he won, led, and participated in about 70 research projects as PI or co-PI with total funding of more than $42M and about 50 collaborators from Georgia Tech and other schools. He co-authored five books and more than 470 peer-reviewed papers, which are cited *about 25,000 times* with H-index of 71 (Web of Science).

As part of his professional services, he organized ten professional conferences and workshops at MRS and ACS National Meetings; led national programs at Polymer Materials Science and Engineering Division, American Chemical Society as a Co-Chair of Program Committee. He has been elected as a *Fellow* (highest professional distinction) for all three major professional societies in his field: *American Physical Society*, *Materials Research Society*, and *American Chemical Society*. He served/s on *Editorial Advisory Boards* of *11 professional journals* with current membership at *MRS Communications, Polymer, Macromolecules, ACS Macro Letters, and ACS Biomaterials Science & Engineering*. He is an *Associate Editor* of high-impact journal, *ACS Applied Materials and Interfaces* since 2015 and an Executive Editor of ACS AMI since 2019.

EDUCATION and TRAINING

MSE Department, MIT	Polymer Materials Science, sabbatical	2005
Polymer Science Department, Akron U.	Polymer Materials Science post-doctoral	1992-1993
Technical University of Darmstadt	Polymer Engineering, post-doctoral	1990-1992
Institute of Macromolecular Chemistry,	Chemistry/Polymer Science	D.Sc. 1988
Institute of Macromolecular Chemistry	Chemistry/Polymers	Ph.D. 1983
National Academy of Sciences of Ukraine		
National University of Ukraine, Kiev	Molecular Physics	M.S., 1978

EXMPLOYMENT

2016–present	**Georgia Institute of Technology, Atlanta, GA** Regents Professor
2015–present	**Georgia Institute of Technology, Atlanta, GA** Dean's Distinguished Professor of Engineering
2006–present	**Georgia Institute of Technology, Atlanta, GA** Professor, School of Materials Science & Engineering

Professor, School of Polymers, Textile, and Fibers (2006-2010)
Founding Director, GT Microanalysis Center (MAC)
Founding Co-Director, Air Force Center of Excellence on Bio-enabled Inorganic-Organic Nanostructures and Improved Cognition (BIONIC) (2009-2015)

1999-2006 **Iowa State University, Ames, IA**
Professor, Department of Materials Science & Engineering
Chair, Undergraduate Polymer Specialization
Director of Graduate Education

1993–1999 **Western Michigan University, Kalamazoo, MI**
Chair of Department, Department of Construction, Materials, and Design
Professor, Materials Science & Engineering
Associate Professor, Materials Science & Engineering

1992–1993 **The University of Akron, Akron, OH**
Research Associate, Department of Polymer Science

1989–1992 **National University of Ukraine and National Academy of Sciences, Kiev**
Head, Laboratory of Molecular Structures, Institute of Bioorganic Chemistry
Principal Research Fellow, Institute of Bioorganic Chemistry

1978–1989 **Institute of Macromolecular Chemistry, National Academy of Sciences, Ukraine**
Senior Research Fellow, Junior Research Assistant, PhD candidate
Department of Polymer Physics

Visiting Positions

2020 Fulbright-NAWI Visiting Professor, U. Graz/TU Graz, Austria
2013 Visiting Professor, Humboldt Research Award, working on biomaterials at MPI Golm, Germany
2010 Visiting Professor, Humboldt Research Award, working responsive materials at University of Bayreuth, Germany
2005 Visiting Professor working on interference lithographical polymers at Department of Materials Science and Engineering, MIT
2001 Visiting Professor working on quasicrystals at Ecole des Mines de Nancy, France
1996 Humboldt Research Fellow working on light emitting diodes at Marburg University, Germany
1995 Faculty Research Associate working on polymer nanocoatings at Air Force Research Lab
1995 Visiting Scientist working on nanotribology at Ford Research & Engineering Center, Dearborn
1994 Visiting International Scholar working on block copolymers at Nihon University, Tokyo
1994 NSF Visiting Scholar working on polyglutamates and Langmuir monolayers at Stanford
1992 Visiting Scientist working on elastomeric liquid crystals at Freiburg University, Germany
1990-1992 Humboldt Research Fellow working on liquid crystals at the Technical University of Darmstadt, Germany

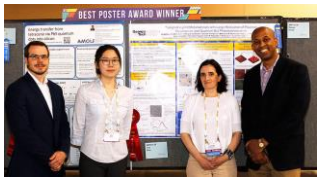
TEACHING and STUDENT TRAINING

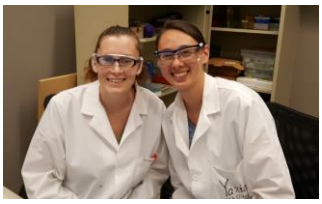
Recent graduate and Postdoctoral Scholars Advised

About 100 graduate and post-graduate (1996-2020): 30 PhD and 25 MS graduates, 45 post-docs/visitors who work for industry (Intel, Micron, Appl. Mater., Dow Chemical, DuPont, Whirpool), national labs (NRL, ORNL, AFRL), and as faculty in academia (Akron U., U. Alabama, Washington U., Clemson U., ULSAN).

Some recent PhD graduates/post-doctorals are: A. Grant (2019, Northrup Grumman); S. Zhang (2019, App. Mater.); M. Smith (2019, AFRL); C. Liu (2018, Intel); J. Geldmeyer (2017, Naval Research Lab), S. Malak (2016, Intel); K. Hu (2016, App. Mat.); S. Young (2016, Georgia Pacific); W. Xu (2015, John Hopkins U.); I. Drachuk (2014, AFRL); T. Koning (2014, U. Bayreuth), I. Choi (2013, Cornell), M. Gupta (2012, Princeton); K. Anderson (2012, Dow); S. Chang (2011, MIT); Prof. S. Singamaneni (2010, WashU, St. Louis); Prof. E. Kharlampieva (2010, U. Alabama); M. McConney (2009, AFRL); Prof. H. Ko (UNIST, 2008); Prof. C. Jiang (2007, U. South Dakota); M. Lemieux (2006, Stanford, C3Nano); S. Peleshanko (2006, DuPont); D. Julthongpiput (2003, Intel); V. Gorbunov (2001, Bruker); Prof. I. Luzinov (2000, Clemson U.)

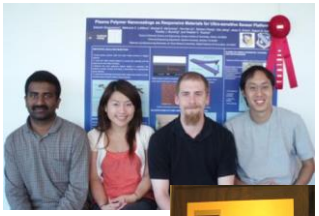
Recent Awards for Graduate and Postdoctoral Scholars Advised





2019 Humboldt Post-Doc Fellowship to Rui Xiang
2018 MRS Best Poster Award to Jing Zhou
2018 MSE Fellowships to Andrew Erwin, Jing Zhou, and Shuaidi Zhang
2017 DOE ORNL Graduate Fellowship to Andrew Erwin
2017 NSF Graduate Fellowship o Michelle Krecker and Elizabeth Quigley
2017 Excellence in ACS Graduate Research Symposium Award to Anise Grant for biomaterials
2017 GT MSE Best Poster Awards to Elizabeth Quigley and Ruilong Ma for biomaterials
2017 GT Best Poster PDF Award, Sunghan Kim for biopolymer multilayers
2017 NSF Graduate Fellowship to Anise Grant
2016 GT Polymer Network Best Poster Awards, Ruilong Ma (1st) and A. Erwin
2016 Outstanding Poster GTPN Award to Dr. S. Kim for LbL membranes
2016 GT MSE Best Poster Awards to S. Malak for optical materials and A. Grant for biocomposites
2016 Chinese Government Outstanding Student Award to W. Xu
2016 Sigma XI Award for best PhD thesis to W. Xu
2015 Excellence in ACS Graduate Research Symposium Award to W. Xu for smart microcapsules
2015 GT Best Poster GTPN Award to J. Jeon for tunable plasmonic
2015 GT MSE Best Poster Award to S. Malak for optical metamaterials
2015 GT COPE Scholarship to K. Hu for graphene bioelectronics
2015 Chinese Government Outstanding Student Award to K. Hu
2014 Award for Best Poster at GT Polymer Network to K. Hu research on biocomposites
2014 Awards to K. Hu and J. Geldmeir for Best Posters at MSE Poster Student Competition
2014 Award to K. Hu for Invited Talk at Michigan Macro Symposium
2014 National Research Council post-doctoral Fellowship to I. Drachuk to work at AFRL
2013 Excellence in ACS Graduate Research Symposium Award to I. Drachuk for research on cells
2013 Three GT MSE best poster awards to I. Drachuk, K. Hu, R. Geryak, and R. Suntivich
2013 IC Post-doctoral Fellowship to M. Gupta for biomimetic research at Princeton
2012 SAIC Best Paper Award (to I. Drachuk) for research on cell protection
2011 SAIC Best Paper Award (to D. Kulkarni) for research on graphene
2010 Georgia Tech MSE Department Research Initiation Awards (I. Choi, M. Gupta, D. Kulkarni) for first refereed publication' on hybrid nanomaterials in first 18 month of graduate study
2010 National Defense Science and Engineering Graduate Fellowship to Z. Combs to work on Raman active materials
2009 National Research Council post-doctoral Fellowship to M. McConney to continue research on responsive polymers at AFRL
2009 SAIC Best Paper Award to M. Gupta for research on silk nanomaterials

2008 MRS Gold Award for Graduate Research to S. Singamaneni (currently-faculty member at WashU in St. Louis) for the best graduate research on buckling of polymer microstructures, the highest student honor at MRS



2007 MRS Best Poster Award to S. Singamaneni, M. McConney, Y.H. Lin, S. H. Chang for research on plasma polymerized bio-materials

2007 Central Intelligence Post-doctoral Fellowship to M. Lemieux to continue his work on directed assembly at Stanford

2007, 2006 Iowa State Zaffarano Prizes to S. Peleshanko, M. Lemieux, K. Genson for the most refereed PhD thesis

2006 National Research Council post-doctoral Fellowship (to K. Genson) for research on grafted polymers at NIST

Other Teaching Activities

Textbook completed in 2012: V. V. Tsukruk, S. Singamaneni, *Scanning Probe Microscopy of Soft Matter: Fundamentals and Practices,* Wiley-VCH, Weinheim, **2012**, 661 pages.

Member of about 20+ completed and current POS committees in 4 different departments
Diversity training: about 40% of all graduate students/post-docs trained are females including two African-American females which is much higher than the average in GT engineering

Five different courses developed at Georgia Tech including five first-time preparations

Materials Science and Engineering Department, Georgia Institute of Technology

Polymer Characterization	2011-current
Introduction into Polymers Science and Engineering	2009-current
Soft & Bio Nanomaterials	2009-current
Advanced Polymeric Materials	2007-current
Nanotechnology and nanomaterials	2007-current

Average teaching evaluation ("effective teacher") is 4.3

Prior educational contributions:
Director, MSE Departmental Graduate Program, 2002-2004, Chair, Polymer Specialization Program, 1999-2006; Iowa State U:; established a new curriculum in polymer materials: a logical sequence of joint polymer courses for MSE and ChE departments (ISU); redesigned undergraduate and graduate programs (WMU); Outstanding Service to Students Award, WMU (1995); 11 undergraduate and seven graduate courses have been proposed, developed, and taught:

SCHOLARLY ACHIEVEMENTS

PUBLICATIONS

480+ refereed papers, 36 invited reviews, 2 books co-authored and 3 volumes co-edited; about 25,000 citations with H-index of 71 (Web of Knowledge, February 2019), 7 patents.

Textbook: V. V. Tsukruk, S. Singamaneni, *Scanning Probe Microscopy of Soft Matter: Fundamentals and Practices,* Wiley-VCH, Weinheim, 2012, 661 pages.

Most significant and relevant publications

E. Lafalce, Q. Zeng, C. H. Lin, M. J. Smith, S. T. Malak, J. Jung, Y. J. Yoon, Z. Lin, V. V. Tsukruk, Z. V. Vardeny, Robust lasing modes in coupled colloidal quantum dot microdisk pairs using a non-Hermitian exceptional point, *Nat. Comm.,* **2019,** 10, 561.

V. Cherpak, V. F. Korolovych, R. Geryak, T. Turiv, D. Nepal, J. Kelly, T.J. Bunning, O.D. Lavrentovich, W. T. Heller, V. V. Tsukruk, Robust Chiral Organization of Cellulose Nanocrystals in Capillary Confinement, *Nano Lett*., **2018**, *118*, 6770

S. Zhang, R. Geryak, J. Geldmeier, S. Kim, V. V Tsukruk, Synthesis, assembly, and applications of hybrid nanostructures for biosensing, *Chem. Rev*. **2017**, *117*, 12942-13308.

R. Xiong, K. Hu, A. Grant, R. Ma, W. Xu, C. Lu, X. Zhang, V. V. Tsukruk, Ultra-robust Transparent Cellulose Nanocrystal-Graphene Membranes with High Electrical Conductivity, *Adv. Mater.,* **2016**, *28,* 1501.

C. Ye, V. V. Tsukruk, Designing two-dimensional materials that spring rapidly into three-dimensional shapes, *Science*, **2015**, *347*, 130.

C. Ye, S. V. Nikolov, R. Calabrese, A. Dindar, A. Alexeev, B. Kippelen, D. L. Kaplan, V. V. Tsukruk, Self-(un)rolling Biopolymer Microstructures: Rings, Tubules, and Helical Tubules from the Same Material, *Angew. Chemie,* **2015**, *54*, 8490.

C. Hanske, M. Tebbe, C. Kuttner, V. Bieber, V. V. Tsukruk, M. Chanana, T. A. F. König, A. Fery, Strongly Coupled Plasmonic Modes on Macroscopic Areas via Template-Assisted Colloidal Self-Assembly, *Nano Lett.,* **2014,** *14,* 6863.

S. S. Sheiko, J. Zhou, J. Boyce, D. Neugebauer, K. Matyjaszewski, C. Tsitsilianis, V. V. Tsukruk, J.-M. Y. Carrillo, A. V. Dobrynin, M. Rubinstein, Perfect mixing of immiscible macromolecules at fluid interfaces, *Nature Mater.,* **2013,** *12,* 735-740.

Drachuk, I.; O. Shchepelina, M. Lisunova, S. Harbaugh, N. Kelley-Loughnane, M. Stone, V. V. Tsukruk, pH-Responsive Nanoshells for Direct Regulation of Cell Activity, *ACS Nano,* **2012,** *6,* 4266.

J. T. Wilson, W. Cui, V. Kozlovskaya, E. Kharlampieva, D. Pan, Z. Qu, V. R. Krishnamurthy, J. Mets, V. Kumar, J. Wen, Y. Song, V. V. Tsukruk, E. L. Chaikof, Cell Surface Engineering with Polyelectrolyte Multilayer Thin Films, *J. Am. Chem. Soc.,* **2011,** *133,* 7054.

Cohen-Stuart, M. C.; Huck, W.; Genzer, J.; Müller, M.; Ober, C.; Stamm, M.; Sukhorukov, G.; Szleifer, I.; Tsukruk, V. V.; Urban, M.; Winnik, F.; Zauscher, S.; Luzinov, I.; Minko, S. Emerging Applications of Stimuli-responsive Polymer Materials. *Nature Mater.* **2010,** *9,* 101.

R. W. Friddle, M. C. LeMieux, G. Cicero, A. B. Artyukhin, V. V. Tsukruk, J. C. Grossman, G. Galli, A. Noy, Single functional group interactions with individual carbon nanotubes, *Nature Nanotech.,* **2007,** *2,* 692

C. Jiang, W. Y. Lio, V. V. Tsukruk, Surface Enhanced Raman Scattering Monitoring of Chain Alignment in Freely Suspended Nanomembranes, *Phys. Rev. Lett.,* **2005,** *95*, 115503.

V. V. Tsukruk, H. Ko, S. Peleshanko, Nanotube surface arrays: Weaving, bending, and assembling on patterned silicon, *Phys. Rev. Let.* **2004**, *92,* 065502.

C. Jiang, S. Markutsya, Y. Pikus, V. V. Tsukruk, Freely Suspended Nanocomposite Membranes as Highly-Sensitive Sensors, *Nature Mater.* **2004,** *3*, 721.

Recent refereed papers (2000-2019)

2019

1. M. J. Smith, C. H. Lin, S. Yu, V. V. Tsukruk, Composite structures with emissive quantum dots for light enhancement, *Adv. Optical Mater.,* **2019,** 1801072.
2. E. Lafalce, Q. Zeng, C. H. Lin, M. J. Smith, S. T. Malak, J. Jung, Y. J. Yoon, Z. Lin, V. V. Tsukruk, Z. V. Vardeny, Robust lasing modes in coupled colloidal quantum dot microdisk pairs using a non-Hermitian exceptional point, *Nat. Comm.,* **2019,** 10, 561.
3. R. Geryak, E. Quigley, S. Kim, V. F. Korolovych, R. Calabrese, D. L. Kaplan, V. V. Tsukruk, Tunable Interfacial Properties in Silk Ionomer Microcapsules with Tailored Multilayer Interactions, *Macromol. Biosci.,* **2019,** *19,* 1800176.
4. S. Zhang, S. Yu, J. Zhou, J. F. Ponder Jr., M. J. Smith, J. R. Reynolds, V. V. Tsukruk, Incommesurate Forward and Backward Scattering Modulation by Polymer-Infused Plasmonic Nanohole Arrays, *J. Mater. Chem., C,* **2019,** *7,* 3090-3099.
5. M. J. Smith, Q. Zeng, E. Lafalce, S. Yu, S. Zhang, Z. Valy Vardeny, V. V. Tsukruk, Coupled Whispering Gallery Mode Resonators via Template Assisted Assembly of Photoluminescent Microspheres, *Adv. Funct. Mater.,* **2019**, *29*, 1902520.
6. S. Kim, V. F. Korolovych, M. J. Weissburg, V. V. Tsukruk, Morphology and Surface Properties of Biological Water Transport Arrays, ACS ABM, 10/29/2018
7. Y. J. Yoon, Y. Chang, S. Pan, S. Zhang, C. Lin, S. Yu, Z. Wang, J. Jung, N. Thadhani, V. V. Tsukruk, Z. Kang, Z. Lin, Enabling Tailorable Optical Properties and Markedly Enhanced Stability of Perovskite Quantum Dots by

Permanently Ligating with Polymer Hairs via Amphiphilic Star-like Block Copolymer Nanoreactors, *Adv. Mater.*, **2019,** *31,* 1901602.

8. R. Xiong, S. Yu, M. J. Smith, J. Zhou, M. Krecker, L. Zhang, D. Nepal, T. J. Bunning, V. V. Tsukruk, Assembling Carbon Quantum Dots on Cellulose Nanocrystals for Chiral Luminescent Biophotonic Materials, *ACS Nano*, **2019,***13,* 9074-9081.
9. Q. Zeng, E. Lafalce, C. Lin, M. J. Smith, J. Jung, Y. Yoon, Z. Lin, V. V. Tsukruk, Z. V. Vardeny, Control of Whispering Gallery Modes and PT-symmetry Breaking in Colloidal Quantum Dot Microdisk Lasers with Engineered Notches, *NanoLetters,* **2019,** *19,* 6049-6057.
10. H. Lee, A. V. Stryutsky, V. F. Korolovych, E. Mikan, V. V. Shevchenko, V. V. Tsukruk, Transformations of Thermo-Sensitive Hyperbranched Poly(ionic liquid)s, *Langmuir*, **2019**, *35,* 11809-11820.
11. S. Zhang, S. R. Panikkanvalappil, S. Kang, M. J. Smith, S. Yu, M. El-Sayed, V. V. Tsukruk, Enhancing plasmonic-photonic hybrid cavity modes by coupling of individual plasmonic nanoparticles, *J. Phys. Chem. C*, **2019**, *123*, 24255-24262.

2018

1. R. Xiong, A. M. Grant, R. Ma, S. Zhang, V. V. Tsukruk, Naturally-derived biopolymer nanocomposite: interfacial design, properties and emerging applications, *Mat. Sci. & Eng. Reports*, **2018**, *125*, 1-41.
2. M. J. Smith, C. H. Lin, S. Yu, V. V. Tsukruk, Composite structures with emissive quantum dots for light enhancement, *Adv. Optical Mater.,* **2018,** 1801072.
3. M. Savchak, N. Borodinov, R. Burtovyy, M. Anayee, K. Hu, R. Ma, A. Grant, H. Li, D. B. Cutshall, Y. Wen, G. Koley, W. R. Harrell, G. Chumanov, V. Tsukruk, I. Luzinov, Highly conductive and transparent reduced graphene oxide nanoscale films via thermal conversion of polymer-encapsulated graphene oxide sheets, *ACS Appl. Mater.&Interfaces,* **2018**, *10,* 3975-3985.
4. N. Borodinov, D. Gil, M. Savchak, C. E. Gross, N. S. Yadavalli, R. Ma, V. V. Tsukruk, S. Minko, A. Vertegel, I. Luzinov, En route to practicality of the polymer grafting technology: One-step interfacial modification with amphiphilic molecular brushes, *ACS Appl. Mater.&Interfaces,* **2018**, *10,* 13941-13952.
5. I. M. Tkachenko, Y. L. Kobzar, V. F. Korolovych, A. V. Stryutsky, L. K. Matkovska, V. V. Shevchenko, V. V. Tsukruk, Novel Branched Nanostructures Based on Polyhedral Oligomeric Silsesquioxanes and Azobenzene Dyes Containing Different Spacers and Isolation Groups, *J. Mater. Chem. C,* **2018**, *6,* 4065-4076.
6. R. Xiong, H. S. Kim, L. Zhang, V. F. Korolovych, S. Zhang, Y. G. Yingling, V. V. Tsukruk, Wrapping Nanocellulose Nets around Graphene Oxide Sheets, *Ang. Chem.,* **2018**, *57*, 8508-8513.
7. V. F. Korolovych, V. Cherpak, D. Nepal, A. Ng, N. R. Shaikh, A. Grant, R. Xiong, T. J. Bunning, V. V. Tsukruk, Cellulose Nanocrystals with Different Morphologies and Chiral Properties as Flexible Photonic Materials, *Polymer*, **2018**, *145,* 334-347.
8. S. Zhang, R. Xiong, M. A. Mahmoud, E. Quigley, H. Chang, M. El-Sayed, V. V Tsukruk, Dual-excitation nanocellulose-plasmonic membranes for molecular and cellular SERS detection, *ACS Appl. Mater. & Interfaces*, **2018**, *10*, 18380-18389.
9. C. H. Lin, Q. Zeng, E. Lafalce, S. Yu, M. J. Smith, Y. J. Yoon, Y. Chang, Y. Jiang, Z. Lin, V. Vardeny, V. V. Tsukruk, Large-area lasing and dual-color perovskite quantum dot patterns, *Adv. Optical Mater.,* **2018**, *6*, 1800474
10. Q. Zeng, E. Lafalce, C. H. Lin, M. J. Smith, S. T. Malak, J. Jung, Y. J. Yoon, Z. Lin, V. V. Tsukruk, Z. V. Vardeny, Spectral and Directional Properties of Elliptical Quantum-Dot Microlasers, *J. Photon. Energy,* **2018,** *8,* 032218.
11. A. J. Erwin, V. F. Korolovych, Z. Iatridi, C. Tsitsilianis, J. F. Ankner, V. V. Tsukruk, Tunable Compartmentalized Morphologies of Multilayered Dual Responsive Star Block Polyampholytes, *Macromolecules*, **2018**, *51*, 4800-4812.
12. V. F. Korolovych, A. Erwin, A. V. Stryutsky, H. Lee, W. T. Heller, V. V. Shevchenko, L. A. Bulavin, V. V. Tsukruk, Thermally Responsive Hyperbranched Poly(ionic liquid)s: Assembly and Phase Transformations, *Macromolecules*, **2018**, *51*, 4923-4937.
13. R. Ma, C. Wu, Z. L. Wang, V. V. Tsukruk, Pop-Up Conducting Large-Area Biographene Kirigami, *ACS Nano*, **2018,** *12,* 9714-9720.
14. V. Cherpak, V. F. Korolovych, R. Geryak, T. Turiv, D. Nepal, J. Kelly, T.J. Bunning, O.D. Lavrentovich, W. T. Heller, V. V. Tsukruk, Robust Chiral Organization of Cellulose Nanocrystals in Capillary Confinement, *Nano Lett.*, **2018**, *118*, 6770-6777
15. L. Wei, T. Demir, A. Grant, V. V. Tsukruk, P. Brown, I. Luzinov, Attainment of water and oil repellency for engineering thermoplastics without long-chain perfluoroalkyls: perfluoropolyether-based triblock polyester additives, *Langmuir*, **2018**, *34*, 12934-12946.

16. Y. Chang, Y. J. Yoon, G. Li, E. Xu, S. Yu, C. H. Lu, Z. Wang, Y. He, C. H. Lin, B. K. Wagner, V. V. Tsukruk, Z. Kang, N. Thadhani, Y. Jiang, Z. Lin, All-Inorganic Perovskite Nanocrystals with a Stellar Set of Stabilities and Their Use in White Light-Emitting Diodes, *ACS Appl. Mater.&Interfaces*, **2018**, *10*, 37267-37276.
17. M. Taghinejad, H. Taghinejad, S. T. Malak, H. Moradinejad, E. V. Woods, Z. Xu, Y. Liu, , A. A. Eftekhar, T. Lian, V. V. Tsukruk, A. Adibi, Sharp and Tunable Crystal/Fano-Type Resonances Enabled by Out-of-Plane Dipolar Coupling in Plasmonic Nanopatch Arrays, *Ann. Phys.,* **2018,** *530,* 1700395.

2017

1. S. Zhang, R. Geryak, J. Geldmeier, S. Kim, V. V Tsukruk,· Synthesis, assembly, and applications of hybrid nanostructures for biosensing, *Chem. Rev*. **2017**, *117*, 12942-13308.
2. S. T. Malak, M. J. Smith, Y. Jun Yoon, C. H. Lin, J. Jung, Z. Lin, V. V. Tsukruk, Programmed emission transformations: negative to positive patterning using the decay-to-recovery behavior of quantum dots, *Adv. Opt. Mater.,* **2017**, *5,* 1600509
3. R. Ma, V. V. Tsukruk, Seriography-Guided Fabrication of Graphene Oxide Biopapers for Wearable Sensory Electronics, *Adv. Funct. Mater*., **2017**, *27,* 1604802.
4. C. H. Lin, Q. Zeng, E. Lafalce, M. J. Smith, S. T. Malak, J. Jung, Y. J. Yoon, Z. Lin, Z. V. Vardeny, V. V. Tsukruk, Large-Scale Robust Quantum Dot Microdisk Lasers with Controlled High Quality Cavity Modes, *Adv. Opt. Mater.,* **2017**, *5*, 1700011
5. A. J. Erwin, W. Xu, H. He, K. Matyjaszewski, V. V. Tsukruk, Linear and Star Poly(ionic liquid) Assemblies: Surface Monolayers and Multilayers, *Langmuir*, **2017**, *33,* 3187-3199.
6. S. Zhang, S. Kim, V. V Tsukruk, Ligand-exchange Dynamics on Gold Nanocrystals: Direct Monitoring on Nanoscale Polyvinylpyrrolidone-thiol Domain Surface Morphology, *Langmuir*, **2017**, *33*, 3576-3587.
7. M. J. Smith, S. T. Malak†, J. Jung, Y. Jun Yoon, C. H. Lin†, S. Kim, K. N. Lee, T. J. White, T. J. Bunning, Z. Lin, V. V. Tsukruk,· Robust, Uniform, and Highly Emissive Quantum Dot-Polymer Films and Patterns Using Thiol-ene Chemistry, *ACS Appl. Mater.&Interfaces*, **2017**, *9,* 17435-17448.
8. V. F. Korolovych, A. J. Erwin, A. V. Stryutsky, E. K. Mikan, V. V. Shevchenko, V. V. Tsukruk, Self-Assembly of Hyperbranched Protic Poly(ionic liquid)s with Variable Peripheral Amphiphilicity, *Bull. Chem. Soc. Jpn.* **2017**, *90,* 919-923.
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Presentations

700+ presentations including about 230 invited, keynote, and plenary talks at professional conferences and seminars.

Recent Invited Talks

2019

NSF-MOM Soft Evolutionary Workshop,St Louis	invited talk
Washington University, St Louis	invited talk
International Conference on Composite Materials, Melbourne	two invited talks
International Silk Conference, Trento, Italy	invited talk
University of Bayreuth, Germany	invited talk
Chemistry and Biology Conference, Barcelona, Spain	keynote and invited talks, session chair
ECOF16 Conference, Paris, France	Invited talk
Polymers in Life Science, Philadelphia	invited talk, session chair
ACS National Meeting, Orlando	invited talk
ACS National Meeting, Orlando	four presentations
MRS National Meeting, Phoenix	two presentations

2018

3rd Conference in Polymer Science&Engineering, Beijing, China	keynote talk, session chair
NICE Conference, Nice, France	keynote talk, session chair
Physics of Liquids Conference, Kiev, Ukraine	plenary talk, session chair
Minisymposium on Nanoscience, Shanghai, China	plenary talk
Institute of Macromolecular Chemistry, Kiev, Ukraine	invited talk
Natural Science Liceum, Kiev, Ukraine	invited talk
Optical Society Student Conference, Clemson, SC	plenary talk
European Solid Mechanics Conference, Bologna, Italy	invited talk
NIST, Gaithersburg, MD	invited talk
MRS National Meeting, Phoenix, AZ	invited talk
ACS National Meeting, Boston	invited talk
USAF2030 Conference, Tampa, FL	invited input

2017

European Conference on Organized Films, Dresden, Germany	plenary talk, session chair
Nano2017 Conference, Beijing, China	keynote talk, session chair
German Physics Society, Dresden, Germany	plenary talk, session chair
Smart Multifunctional Materials, Rome, Italy	invited talk, session chair
SERMACS2017, Charlotte, SC	keynote talk
Beijing University of Chemical Technology, Beijing, China	invited talk
Chem2Nature Workshop, KAIST, Korea	invited talk
Seoul National University, Korea	invited talk
Optics of Liquid Crystals, Sao Paulo, Brazil	invited talk
Layer-by-Layer Assembly Conference, Seoul, S. Korea	invited talk
Renewable Nanomaterials Conference, TAPPI, Montreal, Canada	invited talk
ACS AMI Chemistry workshop, Shanghai, China	invited talk
Layered Polymer Systems, Monterey, CA	plenary talk
University of Colorado, Colorado Springs	invited talk
Institute for Polymer Research, Dresden, Germany	invited talk
ACS National Meeting, Washington DC	invited talk

2016

Conference on Polymer Science and Engineering, Beijing, China	plenary talk, session chair
Conference on Bioinspired Chemistry and Materials, Nice, France	keynote talk, session chair
CIMTEC Conference, Perugia, Italy	invited talk, session chair
Physics of Liquids Conference, Kiev, Ukraine	invited talk, organizing com, session chair
MRS National Meeting, Boston	invited talk, session chair
ACS National Meeting, Philadelphia	invited talk
DOE Materials Chemistry Conference, DC	invited talk
Milano Polytechnico, Milan, Italy	invited talk
University of Wisconsin, WI	invited talk
University of Toronto, CA	invited talk

2015

Shanghai Jiao Tong University, China	invited talk
Fudan University, Shanghai, China	invited talk
East China University of Science and Technology, Shanghai, China	invited talk
Hubei University, Wuhan, China	invited talk
CNRS Research Institute, Paw, France	invited talk
Institute for Biomaterials, San Sebastian, Spain	invited talk
DOE-BES Neutron Division review meeting, ORNL	invited talk
9th European Solid Mechanics Conference, Madrid, Spain	invited talk
Soft Magnetic Materials Symposium, The University of Georgia	invited talk
Department of Polymer Science, The University of Akron	invited talk
IEN NanoTech Seminar, Georgia Tech	invited talk
AFOSR Review Meeting, Washington DC	invited talk
ACS National Meeting, Denver	invited talk
MRS National Meeting, Boston	invited talk

2014

International SPM Conference, Atagawa, Japan	invited talk, session chair
International Conference SPM on SPM, Toronto, Canada	invited talk, session chair
Physics of Liquid, International Conference, Kiev, Ukraine	invited talk, session chair
International Materials Research Congress, Cancun, Mexico	two invited talks
Conference on Bioinspired and Biobased Chemistry and Materials, Nice	invited talk
Workshop on Confined Structures, ORNL, TN	invited talk
Layer-by-Layer Conference, Hoboken, NJ	invited talk
National Institute of Materials Science, Tsukuba, Japan	invited talk
School of Biology, Georgia Tech	invited talk
Institute of Macromolecular Compounds, St. Petersburg, Russia	invited talk
Lviv Technical University, Lviv, Ukraine	invited talk
DOE Materials Chemistry Meeting	invited presentation

2013

International Symposium “Fibers Interfacing the World”, Clemson	plenary talk
Bayreuth Polymer Symposium, Germany	plenary talk
International Symposium “Chemistry and Life”, Poltava, Ukraine	plenary talk
ICCE-21 Symposium, Tenerife, Spain	invited talk, session chair
Ulsan National Institute of Science and Technology, Ulsan, S. Korea	invited talk
NanoKorea-2013, Seoul, Korea	invited talk
Bioinspired Nanomaterials and Systems, Hanyang U., Seoul, Korea	invited talk
Oxford University, Oxford, UK	invited talk
Queen Mary University, London, UK	invited talk
Kiel University, Kiel, Germany	invited talk
Soft Matter Southeast Symposium, Atlanta	invited talk
Princeton University, NJ	invited talk
Duke University, NC	invited talk
North Carolina State University, NC	invited talk

Texas A&M University, TX	invited talk
MRS National Meeting, Boston	invited talk
ACS National Meeting, New Orleans	invited talk

2012

Conference on Nature Inspired Materials, Nice	keynote talk, session chair, advisory board
ACS National Meeting, San Diego	invited talk, session chair
International SPM Symposium, Rolduck, HL	plenary talk
University of Bielefeld, Bielefeld	invited talk
Aachen University, Aachen	invited talk
DOE Materials Chemistry workshop, Annapolis	invited talk
Biomimetic workshop, NAS, DC	invited talk
PT Workshop, Dayton	invited talk
Koc University, Istanbul	invited talk
Middle East Technical University, Ankara	invited talk
Conference on Applied Physics/Materials Science, Antalia	invited talk, session chair
4st Drug Discovery International Conference, Dubai	invited talk

2011

7st Stimulus-responsive Materials, Hattiesburg, MS	plenary talk
1st Bonn Humboldt Award Winners Forum, Bonn	invited talk, session chair
U. Bordeaux, France	invited talk
U. Mons, Belgium	invited talk
U. Potsdam, Germany	invited talk
MPI for Colloids and Interfaces, Golm	invited talk
International LbL conference, Strasbourg	invited talk
New York Academy of Science, Silk Conference, NYC	invited talk
NSF-DFG Workshop, NYC	invited talk

2010

Humboldt Lectureship, Schloss Goldkronach	plenary lecture
Queens University, Belfast, UK	invited talk
Iowa State U.	invited talk
Lanzhou Inst Chem. Physics, CAS	invited talk
Peking U	invited talk
Ulm U	invited talk
TU Dresden	invited talk
Marburg U	invited talk
Strasbourg U.	invited talk
Bonn U.	invited talk
Wiley Publ House, Weinheim	invited talk
SFB Workshop, Weingarten	invited talk
Bavarian Elite Lecture Series, U. Bayreuth	invited talk
SRC Annual Conference, Amherst	invited talk, presentation
International Nanomedicine Conference, Beijing	invited talk, session chair
MRS National Meeting, San Francisco	invited talk, session chair

2009

Bavarian Polymer Symposium, Bayreuth, Germany	plenary talk
Materials Science and Engineering, U. Pennsylvania	invited talk
Physics Department, Australian National University, Canberra	invited talk
Chemical Engineering, Melbourne University, Australia	invited talk
Bavarian Lecture Series, U. Bayreuth, Germany	invited talk
Chemistry Department, Georgia Tech	invited talk
Materials Science and Engineering, Clemson U., SC	invited talk
Composite/NanoEngineering, ICCE-17, Honolulu, HI	invited talk, session chair

ACS National Meeting, Washington DC	invited talk, session chair

2008

Sensors in Biology and Engineering Symposium, Cetraro, Italy	invited talk, session chair
Max Plank Institute for Polymers, Mainz, Germany	invited talk
Mainz University, Germany	Invited talk
Freiburg University, Germany	Invited talk
Vigo University, Spain	Invited talk
Polyelectrolytes 2008, Coimbra, Portugal	Invited talk
Nanomaterials Workshop, Telluride, CO	invited talk
ACS National Meeting, Philadelphia	three invited talks
ACS National Meeting, New Orleans	invited talk

2007

Stimuli-responsive Materials Conference, Hattiesburg, SM	plenary talk
Duke U., NC	invited talk
Oak Ridge National Lab, TN	invited talk
Whirlpool Research Center, MI	Invited talk
Akron U., OH	invited talk
Physics Dept., National U. Ukraine, Kiev	invited talk
Chemistry Dept., National U. Ukraine, Kiev	invited talk
MSE Dept., MIT, MA	invited talk
MEA Dept., U. Virginia, VA	invited talk
Biology Dept., GT	invited talk
Materials Council, GT	invited talk
AFRL Bioelectronics Workshop, WPAFB, OH	invited talk
ACS National Meeting, Chicago	invited talk
European MRS Meeting, Warsaw, PL	invited talk, session chair

2006

Biology Dept., Vienna University	invited talk
MPI for Colloids and Interfaces, Potsdam	invited talk
Chemistry Dept., Marburg University	invited talk
ACS National Meeting, Atlanta	invited talk, conference chair, session chair
AFRL-GT Workshop, Dayton	invited talk

2005

ChBE, NY Polytechnic Institute, NYC	invited talk
EE, University of Illinois Urbana Champagne	invited talk
MSE, Georgia Institute of Technology, GA	invited talk
ISN, MIT	invited talk
ChE Department, MIT	invited talk
MSE Department, MIT	invited talk
BE, Tufts University	invited talk
Pacifichem2005, Hawaii	two invited talks
ACS National Meeting, Washington DC	two invited talks, session chair
ACS National Meeting, San Diego	invited talk, session chair
ACS Annual Colloid and Surface Science Symposium, Potsdam	invited talk, session chair

2004

International Tribology Conference, Singapore	plenary talk, advisory board
International Polymer Conference, Moscow	plenary talk
Purdue University	invited talk
Pennsylvania State University	invited talk
SES Annual Meeting, Lincoln	invited talk
NATAS Annual Meeting, Williamsburg	two invited talks

Annual Meeting, Society of Plastic Engineers, Chicago	invited talk
ACS National Meeting, Anaheim	three invited talks, session chair

2003

SquareD Research Center, Cedar Rapids, IA	invited talk
ACS regional meeting, Pittsburgh	invited talk
Annual SES conference, Ann Arbor	invited talk
ICI Research Center, Wilton, UK	invited talk
ACS National Meeting, New York	three invited talks, session chair
Annual Meeting, North American Thermal Society, NM	session chair
International Scanning Probe Microscopy Conference, Holland	invited talk
MRS Meeting, Boston	invited talk
ACS National Meeting, New Orleans	three invited talks

2002

Workshop on low friction surfaces, Seoul, Korea	keynote talk
Polymer Department, Akron University	invited talk
AFOSR Workshop, Philadelphia	invited talk
Institute of Polymer Research, Dresden, Germany	invited talk
Max Plank Institute for Polymer Research, Mainz, Germany	invited talk
Technical University of Eindhoven, Holland	invited talk
University of Twente, Holland	invited talk
Physics Department, Swiss Institute of Technology, Lausanne	invited talk
Ecole des Mines des Nancy, Nancy, France	invited talk
Institute Charles-Sadron, University of Strasbourgh, France	invited talk
Department of Materials, Swiss Institute of Technology, Zurich	invited talk
Physics Department, Ulm University, Germany	invited talk
Department of Chemical Engineering, University of Pisa	invited talk
Physics Department, University of Bordeaux, France	invited talk
2nd International Conference on SPM of Polymers, Weingarten	invited talk
Conference on Thermal Analysis and Applications, St. Louis	invited talk

2001

International Conference ASIATRIB, Korea	plenary talk, session chair
Unilever Corp. Research Center	invited talk
National Starch and Chemical Co. Research Center	invited talk
3M Research Center, MN	invited talk
Physics Department, DOE Ames Lab	invited talk
AFOSR Workshop on Nanoscale Coatings, Keystone	invited talk
NATO Advanced Studies Institute on Nanostructures, Crete	invited talk
Physics Dept., University of Crete, Iraklion, Greece	invited talk
NATAS Conference on Thermal Analysis and Applications	invited talk

PROFESSIONAL SERVICES

Professional Services at National and International Levels

Current

Executive Editor, *ACS Applied Materials&Interfaces*	2019-present
Associate Editor, *ACS Applied Materials&Interfaces*	2015-present
Member, Editorial Advisory Board, *MRS Comm.*	2018-present
Member, Editorial Advisory Board, *Macromolecules*	2016-present
Member, Editorial Advisory Board, *ACS Macro Letters*	2016-present
Member, Editorial Advisory Board, *ACS Biomat. Sci.&Eng.*	2014-present
Member, Editorial Advisory Board, *Polymer*	2005-present

Prior

Member, Editorial Advisory Board, *Langmuir*	2010-2018
Member, Editorial Advisory Board, *ACS Applied Materials&Interfaces*	2010-2017
Member, Editorial Advisory Board, *Adv. Mater. Sci. & Eng.*	2009-2015
Member, Editorial Advisory Board, *Res. Lett. Mater. Sci.*	2007-2009
Member, Editorial Advisory Board, *Curr. Chem. Biology*,	2006-2009
Member, Editorial Advisory Board, *Tribology Int.*	1998-2001
Member, External Advisory Board, NSF MADE Center, SC	2018-present
Member, External Advisory Board, C3Nano	2011-present
Member, National Academy of Sciences Panel on Bionanotechnology	2012
CTO, co-founder, *SEMADyne*, Atlanta	2008-2015
Member, External Advisory Board, MSE&ChE Department, Kentucky U.	2004-2007
Member of MRS, APS, and ACS Societies	1992-present

Tsukruk co-organized symposia and industrial workshops at ACS National Meetings on various aspects of polymeric materials and their characterization: *SPM of Polymers* (Orlando, 1996); *Microtribology of Polymers* (Boston, 1998); *SPM industrial* workshop (New Orleans, 1999); *SPM of Polymers* (Washington DC, 2000); and *Highly Branched Polymers* (Atlanta, 2006) in addition to participation (advisory board or co-organizer) in organizing several international conferences (Italy, 2008; Nice, 2012; MRS National Meeting, Boston, 2012). Each of these symposia attracted numerous presenters with three of them resulted in proceeding volumes (ACS Proceedings and Wiley).

About 30 proposals reviewed and 2-4 review panels participated annually (NSF, DOD, EC, DOE, PRF in USA and several international funding agencies/programs in S. Korea, Saudi Arabia, Russia, Israel, and EU). About 50 papers reviewed annually for more than 20+ journals (*Nature, PRL, APL, Adv Mater, Nanolett,* and others)

Co-chair, Symposium at MRS National Meeting on Plasmonic Structures, Fall 2012
Co-chair, Symposium at ACS National Meeting on Highly Branched Polymers, Spring 2006

Campus-wide Activities and Contributions
Member, GT Polymer Network, 2013-present
Member, MSE representative at GT Bioengineering Program Graduate Committee, 2009-present
Member, IBB Institute, 2011-present
Member, COPE Center, 2009-present
Founding Director, MAC Center, 2008-present
Founding Co-Director, BIONIC Center, 2009-2014
COE Regents' Committee, 2019-present
COE Promotion and Tenure Committee, 2008-2010, 2013-2014
COE Research Faculty Promotion Committee, 2007-2008

MSE Award Committee, 2012-present
MSE Graduate Committee, 2008-present
MSE Chair, Promotion and Tenure Committee, 2014-2018
MSE Promotion and Tenure Committee, 2007-2008, 2010-2018
MSE Mentor for young faculty (2008-present)
MSE Faculty Advisory Committee, 2013-2015
MSE Search Committee, 2006-2009, 2016-2017
PTFE Search Committee, 2009-2010

MSE Seminar Committee, 2006-2009

Center proposal efforts leads
Co-director, GT DoD Center of Excellence, $10.7M, 2009, funded
Associate Director, KSU-GT, NSF Science and Technology Center proposal, $25M, 2013, five finalists
Director, GT NSF Engineering Research Center proposal, $20M, 2015
Director, GT NSF Materials Science and Engineering Center proposal, $25M, 2017

RECENT GRANTS AND CONTRACTS

In 1995-2020, about 70 projects executed including 43 projects as the PI

During his tenure at Georgia Tech (2006-2019), more than ***$43M of external funding received in projects with his role as PI or Co-PI*** and total research funding has been received with VVT as ***a PI (and a share as co-PI) is about $23M.*** Funding includes $7.5M from NSF (15 projects), $9.6M from DoD and DHS (20 projects), $2.4M from DOE (6 projects), $0.4M from NASA (2 projects), and $3.7M from private industry or foundations (14 projects) (including General Dynamics, 3M, Imperial Chemical Industries, UES, Alcon, KCC, and Semiconductor Research Corporation). In the past six years, his annual research expenditure is around $1.3M/year and 14 PhD students have been graduated.

Tsukruk was a founding Co-Director and an IRG leader of the $10.7M BIONIC Air Force Center of Excellence at Georgia Tech (2009-2015) which includes 17 faculty members from GT, Emory, and Ohio State. He is a founding Director of Georgia Tech Microanalysis Center (2008-present) which has about $2M worth of characterization instrumentation, provides analytical services and support for 50+ research groups at GT from five different departments and five external companies, and generated about $400K in funding to maintain and upgrade instrumentation.

As Principle Investigator:

Agency	Project	Total/VVT share
NSF, 6 different divisions		
NSF-CBET, 2018-2021	Biophotonics of LC Nanocelluloses	$560,000
NSF-CHEM, 2015-2018	Assembly of Electrochemical Hybrid Materials	$400,000
NSF-DMR, 2015-2019	Responsive Branched Ionic Materials	$552,000
NSF-DMR, 2010-2015	Highly Branched Interfaces	$630,000
NSF-MWN, 2012-2015	Mechanotransducing biological receptors	$780,000
NSF-CBET, 2014-2017	Aptamer SERS for biodetection	$300,000
NSF-CBET, 2014-2017	Interfacial Properties of Nanoshells	$330,000
NSF-DMR, 2007-2010	Dendritic Macromolecules	$455,000
NSF-DMR, 2005-2007	Assembling Dendritic Molecules At Interfaces	$234,000
NSF-CBET, 2009-2012	SERS for biodetection	$300,000
NSF-CMS, 2006-2009	Design of Polymeric Microtrusses	$305,000/$165,000
NSF-NIRT, 2005-2010	Bioinspired Nanomembranes For Microsensors	$1,1M/$320,000
DoD		
AFOSR, 2017-2020	Active Multifunctional Biopolymer Nanocomposites	$645,000
AFRL, 2015-2019	Engineered nanomaterials	$1,100,000
AFOSR, 2014-2017	Biomaterials for Bioelectronics	$585,000
AFOSR, 2011-2014	Integration of biological and synthetic materials	$525,000
AFOSR, 2007-2010	Nanostructured hybrid materials	$450,000
AFOSR, 2009-2010	Supplement: Student summer exchange	$41,000
AFOSR, 2008-2009	DURIP: Low Voltage Electron Microscopy	$193,000
AFOSR, 2005-2007	Nanostructured hybrid materials	$360,000

DOE

DOE, 2016-2019	Hybrid Nanostructures	$750,000/$500,000
DOE-ORNL, 2017-2019	Graduate student support	$120,000
DOE, 2013-2016	Light-matter interactions	$750,000/$510,000
DOE, 2009-2013	Anisotropic mesostructures	$950,000/$600,000
DOE-ORNL, 2012-2015	SNS and HIFER SANS beam line time award	NA
DOE-SNL/CINT, 2014-2016	User Synthetic Facilities Award (Sandia)	NA
DOE-CNMS, 2015-2016	User Microscopy Facilities Award (ORNL)	NA

Industry

MAC Center, 2008-present	Analytical services	$380,000
UES Inc, 2015-2016	Graduate student support on advanced materials	$130,000
GenDyn, 2008-2009	Plasma polymerized nanocoatings	$63,000
UES Inc, 2014-2015	Selective peptides for bionanocomposites	$60,500
Alcon Lab, 2017-2018	Optical bionanocomposites	$50,000
UES Inc, 2017-2018	Encapsulated DNA	$75,000

Co-Principal Investigator

NSF and DoD

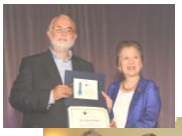
AFOSR, 2013-2019	Photonic Synthetic Materials, (Co-PI with UCF)	$1,900,000/980,000
NSF-CMMI, 2015-2018	Polymer-Graphene Materials (Co-PI, Clemson)	$300,000/140,000
AFOSR, 2009-2015	AF BIONIC Center of Excellence (with Sandhage, MSE)	$10.7M/1.2M
DARPA, 2009-2012	SERS chemical detection (via Engeniusmicro)	$750,000/$230,000
DARPA, 2005-2009	Bioinspired Hair Sensor Arrays (with Liu, UIUC)	$6M/600,000

Industry

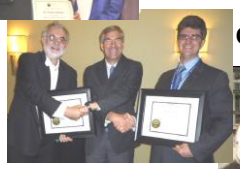
KCC, 2016-2017	Bioinspired surfaces	$260,000/$70,000
ARO, 2007-2009	Reliable explosive detection (via Agiltron)	$500,000/$80,000
DHS, 2006-2007	SERS sensors (SBIR via Agiltron)	$500,000/$95,000
UES Corp, 2011-2012	Bioinspired nanomaterials (with Sandhage, MSE)	$270,000/$64,000
Semico. Res. Corp. 2011-2014	Graphene interconnects (with Fedorov, ME)	$300,000/$150,000
Semico. Res. Corp. 2008-2011	CNT interconnects (with Fedorov, ME)	$300,000/$150,000
GenDyn, 2008-2009	Bioenabled nanoparticle synthesis (with Sandhage, MSE)	$80,000/$30,000

HONORS, AWARDS, and SERVICES

2019 **Fulbright Award**
2016 Regents Professor
2015 Dean's Professorship of College of Engineering
2015 GT Outstanding Faculty Research Author Award
2014 **Fellow, American Chemical Society**
2012 SAIC Advisor Award
2011 **Fellow, Materials Research Society**
2011 SAIC Advisor Award
2010 ***Humboldt Lecturer*** at Humboldt Museum opening
2009 **Fellow, American Physical Society**
2009 SAIC Advisor Award
2009 **Humboldt Research Award**
2006 **NSF Special Creativity Award**
2001 Iowa State Materials Science and Engineering Research Award, elected by faculty
1995 AFOSR Summer Faculty Research Fellowship for work on polymers at Air Force Research Lab



Ceremony with ACS President



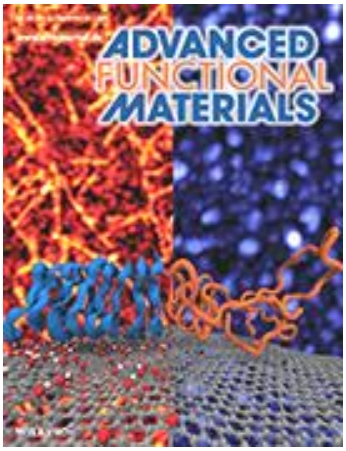
Ceremony with MRS President

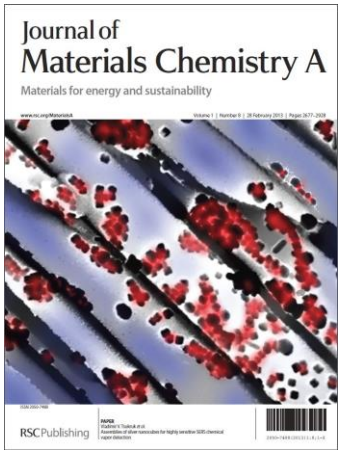
Humboldt Lecturer with Humboldt General Secretary

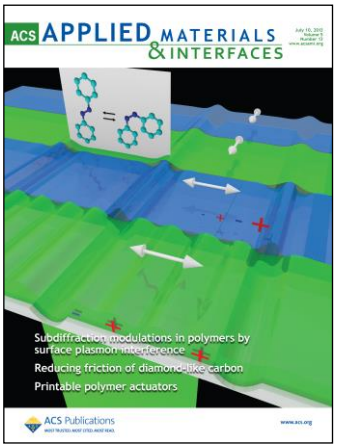
1995 Western Michigan, Outstanding Teaching Award, elected by students
1994 Visiting Scholarship to work on block copolymers at Nihon University, Tokyo, Japan
1994 NSF Research Initiation Award for Young Investigators, an earlier version of CAREER Award
1994 NSF Research Opportunity Award to do summer research on polyglutamates at Stanford
1990 Humboldt Fellowship to do post-doctoral research on polymeric liquid crystals in Germany

Science popularization: *around 50 highlights* on TV, radio, and professional magazines (*Discovery Channel, NPR, Science, MRS Bull., C&E News*) and 26 covers by 13 different journals.

Recent journal covers

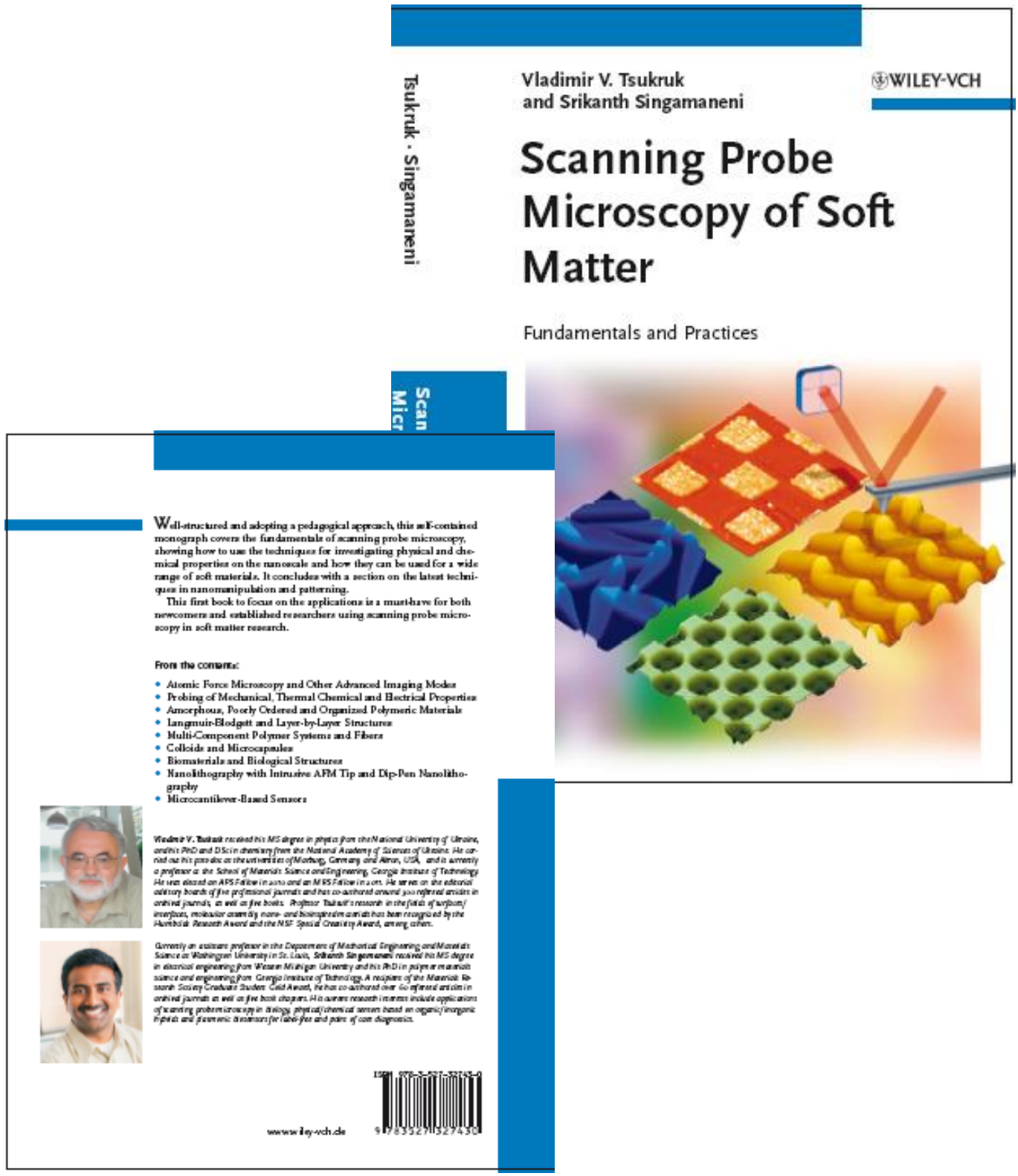

ADVANCED
FUNCTIONAL
MATERIALS


Journal of
Materials Chemistry A
Materials for energy and sustainability
RSC Publishing


ACS APPLIED MATERIALS & INTERFACES
Subdiffraction modulations in polymers by surface plasmon interference
Reducing friction of diamond-like carbon
Printable polymer actuators
ACS Publications


Langmuir
The ACS Journal of Surfaces and Colloids
Probing of Polymer Surfaces in the Viscoelastic Regime
ACS Publications

Recent (2012) textbook



"Well-structured and adopting a pedagogical approach, this self-contained monograph covers the fundamentals of scanning probe microscopy…. for a wide range of soft materials. This first book to focus on the applications is a must-have for both newcomers and established researchers in soft matter"

Review from Amazon.com