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Assistant Professor, Texas Tech University, Fiber and Biopolymer Research Institute (FBRI), Lubbock, TX, USA

Dr. J. L. Shamshina is an Assistant Professor in the Department of Plant and Soil Science, at the Fiber and Biopolymer Research Institute, Texas Tech University. She obtained her BS and MS degrees in Chemical Engineering from D. Mendeleev University of Chemical Technology of Russia, and a Ph.D. in Organic Synthesis from the University of Alabama. Dr. Shamshina has produced 92 refereed journal publications, 13 book chapters, 84 presentations, and 19 patents/patent applications. Dr. Shamshina has submitted (as PI or co-PI) *ca.* 92 grant proposals (42 academic and 45 small business, of them 20 from TTU) from U.S. federal agencies including Department of Agriculture (USDA), Department of Defense (DOD), Department of Energy (DOE), National Aeronautics and Space Administration (NASA), and National Science Foundation (NSF, NSF INTERN), as well as Broad Agency Announcements (Army, Navy) that resulted in \$3M of awards for academia and \$2M in awards for small businesses. **Texas Tech funding:** Private Industry (BastCore, \$132,000, 50%), NSF I-Corps, \$50,000, 100%, NSF MRI: \$349,549, 20%.

She serves on the Editorial Board of the *Journal of Ionic Liquids* and the *Frontiers in Chemistry: Molecular Liquids* and is a reviewer of many high-impact factor research journals (*Carbohydrate Polym.* (Elsevier), *Curr. Res. Green Sustain. Chem.* (Elsevier), *J. Ionic Liquids* (Elsevier), *Green Chemistry* (RSC), *Nature Sci. Reports* (Springer Nature), *ACS Sustainable Chemistry & Engineering* (ACS), *Crystal Growth and Design* (ACS), etc. She is a member of the American Chemical Society and European Chitin Society. She received several outstanding awards such as the **Green Chemistry Challenge Award 2018** (Greener Reaction Conditions Category. A practical way to mass production of chitin: the only facility in the U.S. to use ionic liquid-based isolation process) and the **NASA Tech Brief Award** (innovations developed by NASA and its industry partners/contractors): “Ionic Liquids: Unlocking the Gate to Replacing Hydrazine,” 2011.

POSITIONS

- 09/01/2022 — current: Assistant Professor, Texas Tech University, Fiber and Biopolymer Research Institute (FBRI), Lubbock, TX, USA
- 01/19/2021 — 11/01/2022: Research Assistant Professor, Texas Tech University, Fiber and Biopolymer Research Institute (FBRI), Lubbock, TX, USA
- 08/01/2018 — 08/01/2021: Adjunct Assistant Research Personnel of The Dept. of Chemistry and Biochemistry, The University of Alabama, Tuscaloosa, AL
- 01/01/2020 — 12/31/2020: Research Chemist, 525 Solutions, Inc., Tuscaloosa, AL, USA
- 08/01/2017 — 07/31/2019: Principal Chemist (acting Chief Scientific Officer (CSO)), Mari Signum Mid-Atlantic, LLC., Richmond, VA, USA
- 08/01/2011 — 08/01/2018: Visiting Fellow, The University of Alabama, Tuscaloosa, AL, USA

CURRICULUM VITAE

Julia L. Shamshina, PhD

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URL: <https://sites.google.com/view/julia-shamshina-personal/>

- 04/01/2016 — 02/19/2017: Academic Associate in Green Chemistry, McGill University, Montreal, QC, Canada
- 05/03/2015 — 03/03/2017: Founder and Chief Scientific Officer (CSO), Chitinality, LLC, Tuscaloosa, AL, USA
- 02/22/2017 — 31/07/2017: Principal Chemist (acting Chief Scientific Officer (CSO)), 525 Solutions, Inc., Tuscaloosa, AL, USA
- 04/01/2016 — 02/21/2017: Consultant Chemist, 525 Solutions, Inc., Tuscaloosa, AL, USA
- 08/01/2012 — 03/30/2016: Principal Chemist (acting Chief Scientific Officer (CSO)), 525 Solutions, Inc., Tuscaloosa, AL, USA
- 08/21/2012 — 03/31/2014: Research Associate, The University of Alabama, Tuscaloosa, AL, USA.
- 04/01/2011 — 07/20/2012: Senior Research Scientist, Streamline Automation, LLC, Huntsville, AL, USA
- 08/12/2011 — 03/31/2011: Postdoctoral Fellow, The University of Alabama, Tuscaloosa, AL, USA.
- 08/07/2003 — 08/01/2008: Research/Teaching Assistant, The University of Alabama, Tuscaloosa, AL, USA
- 09/01/2001 — 06/31/2003: Research Scientist, Zelinsky's Institute of Organic Chemistry, Russian Academy of Science, Moscow, Russia
- 2001 — 2003: Research Chemist, ChemDiv, Inc. ("ChemDiv"), Moscow Division, Moscow, Russia
- 1998 — 2001: Research Chemist, ChemBridge Corp. ("ChemBridge"), Moscow Division, Moscow, Russia

EDUCATION AND TRAINING

- 2008-2011: The University of Alabama, Tuscaloosa, AL, USA; Postdoctoral Fellow in Chemistry
- 2003-2008: The University of Alabama, Tuscaloosa, AL, USA; Ph.D. in Organic Chemistry
- 1991-1997: D. Mendeleev University of Chemical Technology of Russia, Moscow, Russia; B. S. and M.S. Degree in Chemical Engineering

STATISTICS

1. Citations; h-Index, i10-index: >4990; 38; 77
2. Publications: 92
3. Books Edited: 1
4. Book Chapters: 13
5. Patents and Patent Applications: 19
6. Presentations (incl. collaborators) before National, International and Regional Meetings: 84

Ranked as the top 2% *world's top 2% of Scientists List*, by c-score (with and without self-citations) or a percentile in the sub-field in **2021**, **2022**, and **2023** (see: "October 2023 data-update for "Updated science-wide author databases of standardized citation indicators"", Elsevier Data Repository, V6, doi: 10.17632/btchxkzyw.6 and previous versions).

RESEARCH INTERESTS & SPECIAL COMPETENCIES

1. All aspects of biopolymer processing, from fundamental properties to overall material preparation to industrial applications. The exploitation of biopolymers to engineer advanced composites and hybrid materials (biodegradable polymers, biopolymers, biopolymer composites, and biopolymer gels) with a focus on chitin biopolymer;
 - a. **Nano-engineered biopolymers**, nano-biocomposites, hybrid nano-reinforced biopolymer composites;
 - b. **Potential industrial uses** of biopolymers in high-value materials, with the ultimate goal of replacing synthetic plastics when/if possible: tissue engineering applications, sorbents, and sensors;
 - c. **Non-traditional sources/ green chemistry methods** for biopolymer isolation;
 - d. **Enzymatic degradation** of chitin polymer, to produce COSs and glucosamine.
2. Utilizing ionic liquids in pursuit of Green Chemistry.

MEMBERSHIPS IN PROFESSIONAL, ACADEMIC, AND HONOR SOCIETIES

1. European Chitin Society (EUCHIS) 2022 – current
2. American Chemical Society (ACS) 2008 – current
 - a. Presider on ACS Symposium:
 - i. Spring 2022,
 - ii. Spring 2021;
 - b. Organizer of ACS Symposium at ACS National Meeting & Exposition ([CELL] "*Advances in Renewable materials*):
 - i. Spring 2022,
 - ii. Spring 2023,
 - iii. Fall 2023,
 - iv. Spring 2024;
 - c. Organizer of ACS 2023 Rocky Mountain Regional Symposium "*Renewable Materials from Biopolymers*":
 - i. Fall 2023.
3. Canadian Society for Chemistry (CSC) 2016 – 2017

SCIENTIFIC, ACADEMIC, AND HONORARY ACHIEVEMENTS AND AWARDS

- 2022: Ranked as the top 2% Top World's Scientists List, by c-score, in the "World Ranking of Top 2% Scientists" in 2021 database (Published: 4 October 2023) created by experts at Stanford University, USA
- 2021: Ranked as the top 2% Top World's Scientists List, by c-score, in the "World Ranking of Top 2% Scientists" in 2022 database (Published: 10 October 2022) created by experts at Stanford University, USA
- 2020: Ranked as the top 2% Top World's Scientists List, by c-score, in the "World Ranking of Top 2% Scientists" in 2021 database (Published: 19 October 2021) created by experts at Stanford University, USA
- 2018: Green Chemistry Challenge Award 2018: Greener Reaction Conditions Category. A practical way to mass production of chitin: the only facility in the U.S. to use an ionic liquid-based isolation process

- 2011: NASA Tech Brief Award (Recognizes innovations developed by NASA and its industry partners/contractors): “Ionic Liquids: Unlocking the Gate to Replacing Hydrazine,” DRC 010-041, March 21, 2011
- 2009: Elevator Pitch Competition, 2nd Place, Alabama Innovation and Mentoring of Entrepreneurs, The University of Alabama
- 2009: Alabama Launchpad Business Plan Competition Award, Alabama Innovation and Mentoring of Entrepreneurs, The University of Alabama
- 2004: Award for Outstanding Students, Department of Chemistry, The University of Alabama, Tuscaloosa, AL, USA University

PATENTS AND PATENT APPLICATIONS total of 19 (02 from TTU)

Texas Tech

1. Abidi, N.; Shamshina, J. L. A process for a complete delignification of hemp bast fibers using microwave heating in deep eutectic solvents, Provisional Patent, filed 04/07/2023. **(Licensed by BastCore, Inc.)**
2. Abidi, N.; Shamshina, J. L. Preparation of Chitin Nanocrystals and Nanowhiskers from Crustacean Biomass Using Ionic Liquid. World Intellectual Property Organization, WO2023059499 A1 2023-04-13.

Pre-Hire

3. Rogers, R. D.; Zavgorodnya, O.; Shamshina, J. L. “Metal Particle-Chitin Composite Materials and Methods of Making Thereof,” US20180273710 A1 2018-09-27.
4. Rogers, R. D.; Galpothdeniya, W. I. S.; Shamshina, J. L.; Zavgorodnya, O. “Coagulation of chitin from ionic liquid solutions using kosmotropic salts,” US20180194864 A1 2018-07-12.
5. Zavgorodnya, O.; Shamshina, J. L.; Gurau, G.; Rogers, R. D. “Printing of Biopolymers from Ionic Liquid,” PCT Application 16/296,776 filed 03/08/19.
6. Rogers, R. D.; Gurau, G.; Kelley, S. P.; Kore, R.; Shamshina, J. “Mixed metal double salt ionic liquids with tunable acidity,” US20170209858 A1 2017-07-27..
7. Barber, P. S.; Griggs, C. S.; Rogers, R. D. Shamshina, J. L.; Gurau, G. “Chemical pulping of chitinous biomass for chitin and treatment of biomass composition” US20160060363 A1 2016-03-03.
8. Shamshina, J. L.; Zavgorodnya, O.; Gurau, G.; Rogers, R. D. “Graphene-biopolymer composite materials and methods of making thereof,” , WO2018176037 A1 2018-09-27.
9. Rogers, Robin D.; Gurau, Gabriella; Shamshina, Julia L.; Daly, Daniel T. “Chitin and alginate composite fibers,” US20160082141 A1 2016-03-24.
10. Rogers, Robin D.; Gurau, Gabriella; Shamshina, Julia L.; Daly, Daniel T. “Chitin and alginate composite fibers,” WO2014172703 A1 2014-10-23.
11. Hanes, R.; Shamshina, J; Hanes, A.; Rogers, R.; Gurau, G. “Natural Bio-polymer Modified Fabrics and Fibers with Anti-microbial and Wound Healing Promoting Properties–Composition and Method of Production,” U.S. Patent Application 62/283,028, filed on 08/20/2015.
12. Hanes, R.; Shamshina, J; Gurau, G; Rogers, R. “Anti-microbial Coating for Contact Lens Utilizing Ionic Liquid Solutions of Natural Bio-polymers,” U.S. Patent Application 62/284,053, filed on 09/21/2015.

13. Hanes, R.; Shamshina, J; Hanes, A.; Rogers, R.; Gurau, G. "Bio-polymer Modified Fabrics and Fibers – Composition and Method of Production," U.S. Patent Application 62/284,590, filed on 10/05/2015.
14. Shamshina, J; Bonner, J. R.; Hanes, R.; Hanes, A.; Gurau, G.; Rogers, R. D. "Electrospinning Biopolymers Using Ionic Liquids," U.S. Patent Application 62/283,706, filed on 10/07/2015.
15. Hanes, R.; Shamshina, J; Bonner, J.; Rogers, R.; Gurau, G. "Counter Current Coagulation Method for Recovering Solutes from Ionic Liquids with Minimal Energy Requirement," U.S. Patent Application 62/284,781, filed on 10/09/2015.
16. Rogers, R. D.; Cojocar, A. O.; Gurau, G.; Shamshina, J.; Pernak, J. "Double Salt Ionic Liquids of Herbicides," US Patent Application 62/078,132 filed on 11/11/14.
17. DiSalvo, R.; Dykes, H. W. Jr.; Rogers, R. D.; Shamshina, J.; Smiglak, M. "Ionic Liquid Monopropellant Gas Generator," US Patent 8,636,860 01/28/14.
18. Pernak, J.; Shamshina, J.; Praczyk, T.; Syguda, A.; Janiszewska, D.; Smiglak, M.; Gurau, G.; Daly, D. T.; Rogers, R. D. "Herbicidal Compositions and Methods of Use," US Patent Application 13/808,790 filed 1/7/13; published as US 2013/0109572 A1 05/02/13.
19. Pernak, J.; Shamshina, J.; Praczyk, T.; Syguda, A.; Janiszewska, D.; Smiglak, M.; Gurau, G.; Daly, D. T.; Rogers, R. D. "Herbicidal Compositions and Methods of Use," PCT Int. Appl. (2012), WO 2012006313 A2 01/12/12.

PUBLICATIONS**BOOKS:** total of 00 **BOOKS EDITED** total of 01 (01 from TTU)

1. Abidi, N.; Shamshina, J. L. (Eds.), "Properties and Applications of Ionic Liquids," Series: Materials Science and Technologies; Chemistry Research and Applications, Nova Science Publishers, Inc., New York, 2023. ISBN: 979-8-88697-873-5. DOI: <https://doi.org/10.52305/HFEO4188>.

BOOK CHAPTERS total of 13 (04 from TTU)**Texas Tech**

1. Berton, P., Abidi, N., Shamshina, J. CHAPTER 1: What are ionic liquids? Embracing the immensity, In: *Properties and applications of ionic liquids*. Abidi, N.; Shamshina, J. L. (Eds.), Nova Publishers Inc., New York, 2023, pp. 1 – 9. <https://doi.org/10.52305/HFEO4188>.
2. Shamshina, J. L.; Berton, P.; Rogers, R. D. Chitin as a Resource for Eco-Friendly Bioplastics, In: *Encyclopedia of Ionic Liquids*. Zhang, S. (Ed.); SpringerLink, 2022, pp. 203 – 210 (REPRINT). <https://doi.org/10.1007/978-981-33-4221-7>.
3. Berton, P.; Shamshina, J. L. CHAPTER 3: Ionic Liquids for Transdermal Drug Delivery: Choline Geranate System as a Case Study," In: *Application of Ionic Liquids in Drug Delivery*. Goto, M.; Moniruzzaman, M. (Eds.); Springer Nature Singapore Pte Ltd, 2021, pp. 35 – 50. https://doi.org/10.1007/978-981-16-4365-1_3.
4. Shamshina, J. L.; Rogers, R. D. CHAPTER 5: 3D printing of Cellulose and Chitin from Ionic Liquids for Drug Delivery: a Mini-Review. In: *Application of Ionic Liquids in Drug Delivery*. Goto, M.; Moniruzzaman, M. (Eds.); Springer Nature Singapore Pte Ltd, 2021, pp. 71 – 90. https://doi.org/10.1007/978-981-16-4365-1_5.

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5. Shamshina, J. L.; Rogers, R. D. Are Ionic Liquids Enabling Technology? Startup to Scale-up to Find Out, In: *Commercial Applications of Ionic Liquids*. M. Shiflett (Ed.); Springer Nature Switzerland AG, 2020, pp. 69 – 85. https://doi.org/10.1007/978-3-030-35245-5_4.
6. Shamshina, J. L.; Berton, P.; Rogers, R. D. Chitin as a Resource for Eco-Friendly Bioplastics, In: *Green Biomass Conversion Using Ionic Liquids, series of Encyclopedia of Ionic Liquids*, Zhang, S. (Ed.); Springer/Nature, Singapore, 2019, https://doi.org/10.1007/978-981-10-6739-6_43-1.
7. Shamshina, J. L.; Oldham (Konak), T.; Rogers, R. D. Applications of Chitin in Agriculture, In: *Agriculture Reviews 36: Chitin and Chitosan: Applications in Food, Agriculture, Pharmacy, Medicine and Wastewater Treatment*, Crini G., Lichtfouse E. (Eds.) Sustainable Springer, Cham, Switzerland, 2019, pp. 125-146. https://doi.org/10.1007/978-3-030-16581-9_4.
8. Shamshina, J. L.; Rogers, R. D. Recent Advances in Electrospinning of Biopolymers, In: *Green Electrospinning*. Demir, M. M.; Crespy, D.; Munoz-Espi, R. (Eds.); DeGruyter, 2019, pp. 189-215, <https://doi.org/10.1515/9783110581393-008>.
9. Shamshina, J. L.; Zavgorodnya, O.; Rogers, R. D. Ionic Liquids, In: *Encyclopedia of Analytical Science. Chemistry Molecular Sciences and Engineering*, Davies, P. and Manisha, K. (Eds.), 3rd Edition, Elsevier, 2019, pp. 218–225. <https://doi.org/10.1016/B978-0-12-409547-2.13931-9>.
10. Shamshina, J. L.; Zavgorodnya, O.; Rogers, R. D. Advances in Processing Biomaterials from Ionic Liquids, In: *Advances in Biochemical Engineering/Biotechnology series*. Koo, Y.-M. and Itoh, T. (Eds.), Springer International Publishing AG, 2018. https://doi.org/10.1007/10_2018_63.
11. Zavgorodnya, O.; Shamshina, J. L.; Berton, P.; Rogers, R. D. Translational Research from Academia to Industry: Following the Pathway of George Washington Carver, In: *ACS Symposium Series, Ionic Liquids: Current State and Future Directions*, American Chemical Society, 2017; Vol. 1250, pp. 17-33. <https://doi.org/10.1021/bk-2017-1250.ch002>.
12. Shamshina, J. L.; Berton, P.; Wang, H.; Zhou, X.; Gurau, G.; Rogers, R. D. CHAPTER 20: Ionic Liquids in the Pharmaceutical Industry, In: *Green Techniques for Organic Synthesis and Medicinal Chemistry*, Zhang, W. and Cue, B. (Eds.), 2nd Edition, Wiley, 2018, pp. 541 – 577. <https://doi.org/10.1002/9781119288152.ch20>.
13. Berton, P.; Shamshina, J. L.; Rogers, R. D. Ionic liquids for sustainable chemical processes, In: *Reference Module in Earth Systems and Environmental Sciences*, Abraham, M. A., Ed.; 1st Ed; Elsevier: Amsterdam, 2017; Vol. 3; pp. 645–651. <https://doi.org/10.1016/B978-0-12-409548-9.10251-9>.

PUBLICATIONStotal of 92 (23 from TTU)**Texas Tech**

1. Meng, Q.; Ye, Z.; Wang, Y.; Liu, C.; Sun, Q.; **Shamshina, J. L.**; Shen, X. Self-micropatterned wood hydrophone for underwater detection. *Adv. Funct. Mater.* **2023**, 202304104. <https://doi.org/10.1002/adfm.202304104>.
2. Wang, Y.; Liao, J.; Liu, C.; Sun, Q.; **Shamshina, J. L.**; Shen, X. A cilia-inspired micropatterned sensor with a high-permittivity dielectric hydrogel for ultrasensitive mechanoreception both in air and underwater. *J. Mater. Chem. A* **2023**, *11*, 26562 – 26572. <https://doi.org/10.1039/D3TA05884K>.

3. **Shamshina, J. L.**; Rogers, R. D. Ionic Liquids: New Forms of Active Pharmaceutical Ingredients with Unique, Tunable Properties. *Chem. Rev.* **2023**, *123(20)*, 11894 – 11953. <https://doi.org/10.1021/acs.chemrev.3c00384>.
4. Hoque, E.; Tran, P.; Jacobo, U.; Bergfeld, N.; Acharya, S.; **Shamshina, J. L.**; Reid, T. W.; Abidi, N. Antimicrobial Coatings for Medical Textiles via Reactive Organo-selenium Compounds. *Molecules* **2023**, *28(17)*, 6381. <https://doi.org/10.3390/molecules28176381>.
5. Shamshina, J. L.; Berton, P. Renewable Biopolymers Combined with Ionic Liquids for the Next Generation of Supercapacitor Materials. *Int. J. Mol. Sci.* **2023**, *24*, 7866. <https://doi.org/10.3390/ijms24097866>.
6. Berton, P.; **Shamshina, J. L.** Ionic Liquids as Tools to Incorporate Pharmaceutical Ingredients into Biopolymer-Based Drug Delivery Systems. *Pharmaceuticals* **2023**, *16(2)*, 272. <https://doi.org/10.3390/ph16020272>.
7. Shen, X.; Zhao, D.; Xie, Y.; Wang, Q.; **Shamshina, J. L.**; Rogers, R. D.; Sun, Q. Cellulose Gel Mechanoreceptors – Principles, Applications and Prospects. *Adv. Funct. Mater.* **2023**, 2214317. <https://doi.org/10.1002/adfm.202214317>.
8. (Invited Personal Perspective to the Special Issue: Modern Aspects of Ionic Liquids.) **Shamshina, J. L.**; Rogers, R. D. Commercialization of Ionic Liquids in Pursuit of Green Chemistry: Must We Each Become an Entrepreneur? *The Chemical Record* **2023**, *23(8)*, e202200256. <https://doi.org/10.1002/tcr.202200256>.
9. (This article belongs to the Special Issue: Special Issue: Spectroscopic Analysis and Molecular Modification of Nanomaterials): Rumi, S. S.; Liyanage, S.; **Shamshina, J. L.**; Abidi, N. Effect of Microwave Plasma Pre-treatment on Cotton Cellulose Dissolution. *Molecules* **2022**, *27(20)*, 7007. <https://doi.org/10.3390/molecules27207007>.
10. (This article belongs to the Special Issue: A Themed Issue in Honor of Professor Robin D. Rogers - "A Scientific Journey within Green Chemistry") Rachiero, G. P.; Berton, P.; **Shamshina, J. L.** Deep Eutectic Solvents: Alternative Solvents for Biomass-Based Waste Valorization. *Molecules* **2022**, *27(19)*, 6606. <https://doi.org/10.3390/molecules27196606>. Also announced as an entry on "Deep Eutectic Solvents for Biomass-Based Waste Valorization" in MDPI Encyclopedia: <https://encyclopedia.pub/entry/29071>.
11. **Shamshina, J. L.**; Abidi, N. Isolation of Chitin Nano-whiskers Directly from Crustacean Biomass Waste in a Single Step with Acidic Ionic Liquid. *ACS Sustainable Chem. Eng.* **2022**, *10(36)*, 11846–11855. <https://doi.org/10.1021/acssuschemeng.2c02461>.
12. (This article belongs to the Special Issue: A Themed Issue in Honor of Professor Robin D. Rogers - "A Scientific Journey within Green Chemistry") Lyon, D. R.; Smith, B. R.; Abidi, N.; **Shamshina, J. L.** Deproteinization of Chitin Extracted with the Help of Ionic Liquids. *Molecules* **2022**, *27*, 3983. <https://doi.org/10.3390/molecules27133983>.
13. Hoque, E.; Acharya, S.; **Shamshina, J. L.**; Abidi, N. Review of Foam Application to Cotton Textiles. *Textile Res. J.* **2022**, *93(1-2)*, 486 – 501. <https://doi.org/10.1177/00405175221107400>.
14. Berton, P.; Abidi, N.; **Shamshina, J. L.** Ionic liquids: Implementing Objectives of Sustainability for the Next Generation Chemical Processes and Industrial Applications. *Curr. Opin. Green Sustain. Chem.* **2022**, *35*, 100625. <https://doi.org/10.1016/j.cogsc.2022.100625>.
15. **Shamshina, J. L.**; Acharya, S.; Rumi, S. S.; Liyanage, S.; Parajuli, P.; Abidi, N. Cryogenic Grinding of Cotton Fiber Cellulose: the Effect on Physicochemical Properties. *Carbohydrate Polym.* **2022**, 119408. <https://doi.org/10.1016/j.carbpol.2022.119408>.

16. (Invited for a Special Issue on bio-product extraction.) Achinivu, A. C.; **Shamshina, J. L.**; Rogers, R. D. Chitin Extracted from Various Biomass Sources: It's Not the Same. *Fluid Phase Equil.* **2022**, *552*, 113286. <https://doi.org/10.1016/j.fluid.2021.113286>.
17. Acharya, S.; Liyanage, S.; Parajuli, P.; Rumi, S. S.; **Shamshina, J. L.**; Abidi, N. Utilization of Cellulose to its Full Potential: A Review on Cellulose Dissolution, Regeneration, and Applications. *Polymers (Basel)* **2021**, *13*(24), 4344. <https://doi.org/10.3390/polym13244344>.
18. (Invited for the Marine-based *Green Chemistry*-themed collection.) **Shamshina, J. L.**; Abidi, N. Choosing the Right Strategy: Cryogrinding vs Ball Milling – Comparing Apples to Apples. *Green Chem.* **2021**, 9646 – 9657. <https://doi.org/10.1039/d1gc03128g>.
19. Liyanage, S.; Acharya, S.; Parajuli, P.; **Shamshina, J. L.** Production and Surface Modification of Cellulose Bioproducts. *Polymers (Basel)* **2021**, *13*(19), 3433. <https://doi.org/10.3390/polym13193433>.
20. **Shamshina, L.**; Abidi, N. Cellulose Nanocrystals from Ionic Liquids: A Critical Review. *Green Chem.* **2021**, *23*, 6205 – 6222. <https://doi.org/10.1039/D1GC02507D>.
21. (Invited for a Special Issue “Frontiers of Ionic Liquids”) **Shamshina, J. L.**; Qin, Y.; Belmore, K.; Daly, D. T.; Rogers, R. D. Switchable Carbamate Coagulants to Improve Recycling Ionic Liquid from Biomass Solutions. *GreenChE* **2021**, *2*(4), 384 – 391. <https://doi.org/10.1016/j.gce.2021.07.001>.
22. Parajuli, P.; Acharya, S.; **Shamshina, J. L.**; Abidi, N. Tuning the Morphological Properties of Cellulose Aerogels: An Investigation of Salt-Mediated Preparation. *Cellulose* **2021**, *28*, 7559 – 7577. <https://doi.org/10.1007/s10570-021-04028-w>.
23. **Shamshina, J. L.**; Wineinger, H. B.; Choudhary, H.; Vaid, T. P.; Kelley, S. P.; Rogers, R. D. Confusing Ions on Purpose: How Many Parent Acid Molecules Can be Incorporated in a Herbicidal Ionic Liquid? *ACS Sustainable Chem. Eng.* **2021**, *9*(4), 1941 – 1948. <https://doi.org/10.1021/acssuschemeng.0c08797>.

Pre-Hire: 525 Solutions, Inc./ Mari Signum, LLC

24. (Invited for the special issue “Ionic Liquids in Drug Development, Formulation, and Delivery”) **Shamshina, J. L.**; Rogers, R. D. Are Myths and Preconceptions Preventing us from Applying Ionic Liquid Forms of Antiviral Medicines to the Current Health Crisis? *Int. J. Mol. Sci.* **2020**, *21*(17), 6002 – 6018. <https://doi.org/10.3390/ijms21176002>.
25. Wineinger, H.; Kelly, A.; **Shamshina, J. L.**; Rogers, R. D. Farmed Jumbo Shrimp Molts: An Ionic Liquid Strategy to Increase Chitin Yield per Animal while Controlling Molecular Weight. *Green Chem.* **2020**, *22*, 6001 – 6007. <https://doi.org/10.1039/D0GC02216K>.
26. Wineinger, H.; **Shamshina, J. L.**; Kelly, A.; King, C.; Rogers, R. D. A Method for Determining the Uniquely High Molecular Weight of Chitin Extracted from Raw Shrimp Shells Using Ionic Liquids. *Green Chem.* **2020**, *22*, 3734-3741. <https://doi.org/10.1039/D0GC00753F>.
27. (Invited for special issue “Envisioning the Future of Industrial Bioprocesses Through Biorefinery”) **Shamshina, J. L.**; Berton, P. Use of Ionic Liquids in Chitin Biorefinery: A Systematic Review. *Front. Bioeng. Biotechnol.* **2020**, *8*, 11. <https://doi.org/10.3389/fbioe.2020.00011>.
28. (Invited) **Shamshina, J. L.**; Kelly, A.; Oldham, T.; Rogers, R. D. Agricultural Uses of Chitin Polymer. *Environ. Chem. Lett.* **2020**, *18*, 53 – 60. <https://doi.org/10.1007/s10311-019-00934-5>.

29. (Invited for a Special Issue) Berton, P.; Shen, X.; Rogers, R.; **Shamshina, J. L.** 110th Anniversary: High Molecular Weight Chitin and Cellulose Hydrogels from Biomass in Ionic Liquids without Chemical Crosslinking. *Ind. & Eng. Chem. Res.* **2019**, *58*, 19862 – 19876. <https://doi.org/10.1021/acs.iecr.9b03078>.
30. (Invited) **Shamshina, J. L.** Chitin in Ionic Liquids: Historical Insights on the Polymer's Dissolution and Isolation. A Review. *Green Chem.* **2019**, *21*, 3974 – 3993. <https://doi.org/10.1039/C9GC01830A>.
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PRESENTATIONS (PRESENTED AND AS CO-AUTHOR)

Texas Tech

1. T. Basak, **J. L. Shamshina**, "Studying the Effects of Microarchitecture on Chitin Cell Culture Matrices for 3D Tissue Engineering," Presented by T. Basak before Texas Tech Davis College Graduate Student Poster Competition (September 28, 2023), Lubbock, TX.
2. A. Shkuratov, **J. L. Shamshina**, "Economically feasible methods of production of chitin nanomaterials," Presented by A. Shkuratov before Texas Tech Davis College Graduate Student Poster Competition (September 28, 2023), Lubbock, TX.
3. **J. L. Shamshina**, "Chitin: A natural biopolymer with a wide range of applications: Current questions and potential prospects," Presented by **J. L. Shamshina** before "Renewable Materials from Biopolymers" Symposium, 2023 Rocky Mountain Regional Meeting (September 15 - 17, 2023), Laramie, WY, Abstract number: 3964557.
4. A. Shkuratov, **J. L. Shamshina**, "Ionic liquids for realization of chitin nanomaterials platform: Closer look at the cost structure," Presented by **J. L. Shamshina** before "Ionic Liquids for Sustainable Technologies" Symposium, 2023 Rocky Mountain Regional Meeting (September 15 - 17, 2023), Laramie, WY, Abstract number: 3959720.
5. (Invited presentation) **J. L. Shamshina**, "Ionic Liquids in the Development of Novel Chitin Biomaterials," Presented by **J. L. Shamshina** before "Ionic Liquids Across Scales and their Modern-Era Applications: Materials" Symposium, [ENFL] Division of Energy and Fuels, 267th ACS National Meeting (August 13 - 17, 2023), San Francisco, CA, Hybrid, Abstract number: 3926637.
6. **J. L. Shamshina**, N. Abidi, "Chitin nanowhiskers from crustacean waste: Emerging materials for automotive industry and biotechnology," Presented by **J. L. Shamshina** before TechConnect World Innovation Expo (June 19-20, 2023), National Harbor, MD, USA. Presented at The TTU's Office of Research Commercialization (ORC) booth #705.
7. **J. L. Shamshina**, "Biopolymeric Materials in Ionic Liquids: Current State, Challenges and Prospective," Presented by **J. L. Shamshina** before the COIL-9 International Congress (April 24 - 28, 2023), Lyon, France, Abstract number A6751JS.
8. S. Rumi, **J. L. Shamshina**, S. Liyanage, N. Abidi, "3D printing of the cotton linter cellulose solution from ionic liquids," Presented by S. Rumi before the 265th ACS National Meeting (March 26 - 30, 2023), Indianapolis, IN, Hybrid, Abstract number 3819473.
9. **J. L. Shamshina**, N. A. Abidi, "Chitin nanowhiskers derived from crustacean waste using ionic liquids," Presented by **J. L. Shamshina** before the 265th ACS National Meeting (March 26 - 30, 2023), Indianapolis, IN, Hybrid, Abstract number 3819607.
10. **J. L. Shamshina**, "Chitin Processing in Ionic Liquid Media," Presented by **J. Shamshina** before the Gordon Research Conference (August 7 - 12, 2022), Sunday River Resort, Newry, ME, Oral.
11. **J. L. Shamshina**, N. A. Abidi, "Chitin Nanocrystals from Crustacean Biomass in Ionic Liquid Media," Presented by **J. Shamshina** before the Gordon Research Conference (August 7 - 12, 2022), Sunday River Resort, Newry, ME, Poster.
12. **J. L. Shamshina**, R. S. Stein, S. Acharya, and N. Abidi, "Is Cryogrinding for Biopolymers a Proper Substitute for Conventional Ball Milling?" Presented by **J. L. Shamshina** before the ICS 2022 Brazil – 30th International Carbohydrate Symposium (July 10 - 15, 2022), Hybrid, Presentation format: Oral presentation, Section: CPMS, Date: Monday 11th July 2022, Time: 11:30-11:45.
13. **J. L. Shamshina**, "Translation of Academic Research. Sustainable Entrepreneurism: Developing a Business Around an Idea Sustainable entrepreneurship around the idea,"

- Presented by **J. L. Shamshina** at the University of Mississippi (June 14, 2022), Oxford, MS.
14. **J. L. Shamshina** and N. Abidi, "Production of Sustainable Chitin-Based Materials," Presented by **J. L. Shamshina** before the Plastic Waste Free World Conference & Expo North America (June 8-9, 2022), Atlanta, GA.
 15. **J. L. Shamshina** and N. Abidi, "Facile Preparation of Chitin Nanocrystals Directly from Crustacen Biomass," Presented by **J. L. Shamshina** before the 26th Annual Green Chemistry & Engineering Conference, Session "Application of Chemicals, Novel Chemistries, Synthetic Pathways and Processes that Enable a Circular, more Sustainable Economy" (June 6-8, 2022), Reston, VA (Hybrid), Abstract number 3716841.
 16. **J. L. Shamshina**, R. S. Stein, S. Acharya, and N. Abidi, "Is Cryogrinding for Biopolymers a Proper Substitute for Conventional Ball Milling?" Presented by **J. L. Shamshina** before the 263rd ACS National Meeting (March 20 - 24, 2022), Hybrid, Abstract number 3654975.
 17. S. Rumi, S. Lyanage, **J. L. Shamshina**, and N. Abidi, "Effect of Microwave Plasma Pre-treatment on Cotton Cellulose Dissolution," Presented by S. Rumi before the 263rd ACS National Meeting (March 20 - 24, 2022), Hybrid, Abstract number 3663076.
 18. M. N. Uddin, **J. L. Shamshina** and N. Abidi, "Transformation of Hemp Bast into Usable Fiber for Hemp-based Textiles," Presented by M. N. Uddin before the 263rd ACS National Meeting (March 20 - 24, 2022), Hybrid, Abstract number 3663076
 19. Texas Hemp Growers Association (THGA) Hemp ROW CROP Field Day, August 26, 2021, Meadow, TX.
 20. H. B. Wineinger, R. D. Rogers, **J. L. Shamshina**, "Biopolymers as Plastic Alternatives: An Ionic Liquid Strategy to Increase Chitin Yield per Animal while Controlling Molecular Weight," presented by **J. L. Shamshina** before the 25th Annual Green Chemistry & Engineering Conference (June 14 - 18, 2021), Virtual, Abstract number 3565944.
 21. H. B. Wineinger, R. D. Rogers, **J. L. Shamshina**, "Biopolymers as Plastic Alternatives: New Method for the Determination of Molecular Weight," presented by **J. L. Shamshina** before the 261st ACS National Meeting (April 5 - 30, 2021), Virtual, Abstract number 3557316.

Pre-Hire:

22. (Invited) **J. L. Shamshina**, "In search of green chemistry and sustainability: Biopolymers as plastics alternatives," Presented by **J. L. Shamshina** before the 24th Annual Green Chemistry & Engineering Conference, EPA Symposium (June 16-18, 2020), Virtual.
23. R. S. Stein, C. King, I. Huskic, H. M Titi, **J. L. Shamshina**, T. Friscic, R. D. Rogers, "Applying recent cross-polarization techniques," Presented by R. S. Stein before the 102nd Canadian Chemistry Conference and Exhibition (June 3-7, 2019), Quebec, QC, Canada.
24. G. Gurau, **J. L. Shamshina**, and R. D. Rogers, "Uranium from seawater extraction to commercial chitin extraction," Presented by G. Gurau before the 20th Symposium on Separation Science and Technology (SST) for Energy Applications (October 21-24, 2018), Gatlinburg, TN.
25. G. Gurau, **J. L. Shamshina**, and R. D. Rogers, "Uranium from seawater extraction to commercial chitin extraction," Presented by G. Gurau before the Smart Systems and Technologies Conference SST-2018 (December 4-7, 2018), Sydney, Australia.
26. X. Cui, K. Li, H. Choudhary, **J. L. Shamshina**, R. D. Rogers, "Double Salt Ionic Liquids for Lignin Hydrolysis: One Cation for Catalyst and Solvent Anions," Presented by R. D.

- Rogers before the ESC and SMEQ Joint International Meeting (September 30 – October 4, 2018), Cancun, Mexico, Abstract 1862, Paper 112177.
27. G. Gurau, **J. L. Shamshina**, and R. D. Rogers, “Commercialization of Ionic Liquids as Solvents for Natural Materials Processing,” Presented by G. Gurau before the Gordon Research Conference (August 12-17, 2018), Sunday River Resort, Newry, ME (Invited Speaker).
 28. **J. L. Shamshina**, and R. D. Rogers, “Are Ionic Liquids Enabling Technology? Startup to Scale-up to Find Out,” Presented by **J. Shamshina** before the Gordon Research Conference (August 12-17, 2018), Sunday River Resort, Newry, ME, Abstract Poster 68.
 29. O. Zavgorodnya, **J. L. Shamshina**, “Electrospinning of Biopolymers and Biopolymeric Composites from Ionic Liquids,” Presented by O. Zavgorodnya before The University of Alabama in Birmingham February 22, 2018, Birmingham, AL (Invited Speaker).
 30. O. Zavgorodnya, **J. L. Shamshina**, and R. D. Rogers, “Electrospinning of Biopolymers and Biopolymeric Composites from Ionic Liquids,” Presented by O. Zavgorodnya before the 254th National Meeting of the American Chemical Society (August 20-24, 2017), Washington, DC. (POLY 504).
 31. R. D. Rogers, **J. L. Shamshina**, and P. Berton, “Can Ionic Liquids be Disruptive Enough to Save the World?” Presented by P. Berton before the 100th Canadian Chemistry Conference and Exhibition (May 28 – June 2, 2017), Toronto, ON, Canada.
 32. E. C. Achinivu, **J. L. Shamshina**, and R. D. Rogers, “Diversifying the Chitin Economy: Different Sources of Biomass for Chitin Extraction and Biomaterial Formation,” Presented by E. C. Achinivu before the 68th Southeastern Regional Meeting of the American Chemical Society (October 23-26, 2016), Columbia, SC.
 33. O. Zavgorodnya, **J. L. Shamshina**, and R. D. Rogers, “Composite Chitin-Based Nanomats Electrospun from Ionic Liquid as Sorbents for Extracting Uranium from Seawater,” Presented by O. Zavgorodnya before the 19th Symposium on Separation Science and Technology (SST) for Energy Applications (October 10-12, 2016), Gatlinburg, TN.
 34. **J. L. Shamshina**, G. Gurau, R. D. Rogers. Can chemists think & work towards sustainability if it means eliminating the chemicals industry? Presented by R. D. Rogers before the 252nd ACS National Meeting & Exposition (August 21-25, 2016), Philadelphia, PA, MPPG-13.
 35. R. D. Rogers, “Ionic Liquids in Pharma: Is It Time for Manipulation of the Ionic Bond to Supplant Covalent Modification?” Presented by R. D. Rogers before the Gordon Research Conference on Ionic Liquids for Future Technologies (August 14-19, 2016), Sunday River Resort, Newry, ME (Invited Speaker).
 36. T. Cutfield, **J. L. Shamshina**, G. Gurau, L. E. Block, and R. D. Rogers, “Chitinous Beads via Ionic Liquid: Production, Characterization and Potential Applications,” Presented by T. Cutfield before the Gordon Research Seminar (August 13-14, 2016), Abstract Poster 3, and the Gordon Research Conference on Ionic Liquids for Future Technologies (August 14-19, 2016), Sunday River Resort, Newry, ME, Abstract Poster 12.
 37. C. King, P. Berton, **J. L. Shamshina**, G. Gurau, and R. D. Rogers, “Chitin films from an ionic liquid process: a platform for sustainable high end materials,” Presented by C. King before the Gordon Research Seminar (August 13-14, 2016), Abstract Poster 8, and the Gordon Research Conference on Ionic Liquids for Future Technologies (August 14-19, 2016), Sunday River Resort, Newry, ME, Abstract Poster 28.
 38. **J. L. Shamshina**, G. Gurau, and R. D. Rogers, “Pulping of Crustacean Shells using Ionic Liquids: To Extract or Not to Extract,” Presented by **J. L. Shamshina** before the Gordon

- Research Conference on Ionic Liquids for Future Technologies (August 14-19, 2016), Sunday River Resort, Newry, ME, Abstract Poster 52.
39. O. Zavgorodnya, **J. L. Shamshina**, and R. D. Rogers, “Chitin and Chitin-Based Composite Nanomats Electrospun from Room Temperature Ionic Liquids,” Presented by O. Zavgorodnya before the Gordon Research Conference on Ionic Liquids for Future Technologies (August 14-19, 2016), Sunday River Resort, Newry, ME, Abstract Poster 69.
 40. **J. L. Shamshina**, R. D. Rogers. “Addressing the Facts Behind the Fear of Exposure to Chemicals that Threaten Human Reproduction”, Presented by R. D. Rogers before the 252nd National Meeting of the American Chemical Society, Multidisciplinary Program Planning Group (August 21-25, 2016), Philadelphia, PA, Abstract submitted.
 41. R. D. Rogers, O. Zavgorodnya, **J. L. Shamshina**. “If We Are Going to Mine the Oceans, Let’s Not Make the Same Mistakes Made in Terrestrial Mining,” Presented by R. D. Rogers before International Conference on Seawater Uranium Recovery, University of Maryland, College Park, MD USA. July 19-22, 2016.
 42. O. Zavgorodnya, **J. L. Shamshina**, R. D. Rogers. “Electrospun Chitin Nanomats as Sorbent for Extracting Uranium from Seawater”, Presented by O. Zavgorodnya before the International Conference on Seawater Uranium Recovery (July 19-22, 2016), College Park, Maryland, USA.
 43. P. Berton, G. Gurau, **J. L. Shamshina**, R. D. Rogers. “In search of Green Chemistry and Sustainability: Polymeric Materials Based on Renewable Polymers”, Presented by R. D. Rogers before the 26th EUCHEM Conference on Molten Salts and Ionic Liquids (July 3-8, 2016), Vienna, Austria.
 44. **J. L. Shamshina**, G. Gurau, R. D. Rogers. “Making Products without Doing ‘Chemistry’? To be presented by R. D. Rogers before the 251st National Meeting of the American Chemical Society, Annual Green Chemistry and Engineering Conference Symposium (June 14-16, 2016), Portland, OR.
 45. R. D. Rogers, C. A. King, **J. L. Shamshina**, S. P. Kelley, G. Gurau, “Ionic Liquids as Material Forms for Active Pharmaceutical Ingredients,” Presented by R. D. Rogers before the 99th Canadian Chemistry Conference and Exhibition (June 5-9, 2016), Halifax, NS, Canada, Abstract 01072.
 46. **J. L. Shamshina**, G. Gurau, and R. D. Rogers, “Translational research: From academia to industry. Following the pathway of George Washington Carver,” Presented by R. D. Rogers before the 251st National Meeting of the American Chemical Society (March 13-17, 2016), San Diego, CA, Abstract I&EC 054.
 47. P. Berton, G. Gurau, **J. L. Shamshina**, and R. D. Rogers, “In search of green chemistry and sustainability: Polymeric materials based on renewable polymers,” Presented by R. D. Rogers before the 251st National Meeting of the American Chemical Society (March 13-17, 2016), San Diego, CA, Abstract I&EC 109.
 48. C. King, **J. L. Shamshina**, P. Berton, G. Gurau, R. D. Rogers, “Why is chemistry needed when Nature can suffice?” Presented at the Science for a Sustainable Society Symposium (January 26 -27, 2016), Montreal, QC.
 49. R. M. Hanes, **J. L. Shamshina**, E. Achinivu, R. D. Rogers, “Uranium-from-Seawater Sorbents from Fishing Industry Waste – Pilot Testing and Financial Analysis,” Presented by R. M. Hanes before the DOE-NE Fuel Resources Winter 2016 Working Group Meeting (January 14-15, 2016), Oak Ridge National Lab, TN (No Abstract).

50. G. Gurau, **J. L. Shamshina**, N. Abdul Faruk Khan, S. P. Kelley, P. Berton, and R. D. Rogers, "Sustainable materials for energy harvesting – how shrimp shell waste and ionic liquids can make an impact on today's society," Presented by G. Gurau before the 2015 International Chemical Congress of Pacific Basin Societies, Pacifichem 2015 (Dec. 15-20, 2015), Honolulu, HI, Abstract SCTY 335.
51. R. M. Hanes, **J. L. Shamshina**, G. Gurau, T. Di Nardo, P. Berton, S. P. Kelley, and R. D. Rogers, "Uranium-from-Seawater Sorbents from Fishing Industry Waste – Pilot Testing and Financial Analysis," Presented by R. M. Hanes before the DOE-NE Fuel Resources Summer 2015 Working Group Meeting (August 6-7, 2015), College Park, MD (No Abstract).
52. **J. L. Shamshina**, G. Gurau, S. P. Kelley, and R. D. Rogers, "Uranium-from-seawater sorbents from fishing industry waste – cost reduction through solvent recycle." Presented by **J. L. Shamshina** before the 249th National Meeting of the American Chemical Society (March 22-26, 2015), Denver, CO, Abstract I&EC 50.
53. G. Gurau, **J. L. Shamshina**, S. P. Kelley, and R. D. Rogers, "Uranium-from-seawater sorbents from industry waste – from batch to continuous production." Presented by G. Gurau before the 249th National Meeting of the American Chemical Society (March 22-26, 2015), Denver, CO, Abstract I&EC 30.
54. S. P. Kelley, **J. L. Shamshina**, G. Gurau, and R. D. Rogers. "Dual functional sorbents for coextraction of aqueous copper and uranium." Presented by S. P. Kelley before the 249th National Meeting of the American Chemical Society (March 22-26, 2015), Denver, CO, Abstract I&EC 48.
55. R. D. Rogers, S. P. Kelley, G. Gurau, G., and **J. L. Shamshina**. "Nanofiber chitin mats for coextraction of value added metals from seawater: Improving the economics of uranium recovery." Presented by R. D. Rogers before the 249th National Meeting of the American Chemical Society (March 22-26, 2015), Denver, CO, Abstract I&EC 15.
56. J. Bandomir, S. P. Kelley, **J. L. Shamshina**, G. Gurau, and R. D. Rogers. "Homogeneous blending of chitin with biopolymers for advanced biodegradable sorbents for uranium extraction from seawater." Presented by S. P. Kelley before the 249th National Meeting of the American Chemical Society (March 22-26, 2015), Denver, CO, Abstract I&EC 47.
57. **J. L. Shamshina**, G. Gurau, R. D. Rogers, "Uranium-from-Seawater Sorbents from Fishing Industry Waste – Pilot Testing and Financial Analysis," Presented by **J. L. Shamshina** before the DOE-NE Fuel Resources Winter 2015 Working Group Meeting (January 12-13, 2015), Oak Ridge National Lab, TN (No Abstract).
58. O. A. Cojocar, **J. Shamshina**, J. Pernak, R. D. Rogers, "Herbicidal Ionic Liquids with Reduced Volatility and Increased Efficacy," Presented by **J. Shamshina** before the Gordon Research Conference GRC 2014 (August 17-22, 2014), Newry, ME, United States, Poster.
59. **J. L. Shamshina**, G. Gurau, L. E. Block, L. K. Hansen, C. Dingee, A. Walters, R. D. Rogers, "Chitin-Calcium Alginate Composite Fibers for Wound Care Dressings Spun from an Ionic Liquid," Presented by **J. Shamshina** before the Gordon Research Conference GRC 2014 (August 17-22, 2014), Newry, ME, United States, Poster.
60. S. Yerkimbekova, **J. L. Shamshina**, G. Gurau, A. Zazybin, V. Yu, R. D. Rogers, "Ionic Liquids as Electrolytes," Presented by S. Yerkimbekova before the Gordon Research Conference GRC 2014 (August 17-22, 2014), Newry, ME, United States, Poster.
61. G. Gurau, **J. L. Shamshina**, R. D. Rogers, "High Throughput Electrospinning of Uranium Selective Chitin Adsorbents – A Sustainable Ionic Liquid Technology," Presented by G.

- Gurau before the Gordon Research Conference GRC 2014 (August 17-22, 2014), Newry, ME, United States, Poster.
62. **J. L. Shamshina**, G. Gurau, R. D. Rogers, "Wound Dressings through an Ionic Liquid Process – Filling a Gap in the Wound Care Sector," Presented by **J. Shamshina** before the 2013 BioAlabama Annual Meeting and Science Symposium (May 16, 2013), Birmingham, AL, United States, Oral.
 63. O. A. Cojocaru, **J. Shamshina**, K. Bica, G. Gurau, A. Narita, P. D. McCrary, P. S. Barber, R. D. Rogers, "Prodrug Ionic Liquids: Functionalizing Neutral Active Pharmaceutical Ingredients to Take Advantage of the Ionic Liquid Form," Presented by **J. Shamshina** before the 5th Congress on Ionic Liquids, COIL-5 (April 21-25, 2013), Algarve, Portugal, Abstract P342.
 64. K. R. Di Bona, D. Yancey, S. Rizvi, M. Gray, G. Gurau, **J. L. Shamshina**, J. F. Rasco, and R. D. Rogers, "Transdermal Pharmacokinetic Studies of Ionic Liquids Composed Entirely of Active Pharmaceutical Ingredients," Presented by K. R. Di Bona before the 5th Congress on Ionic Liquids, COIL-5 (April 21-25, 2013), Algarve, Portugal, Abstract P339.
 65. G. Gurau, L. E. Block, **J. Shamshina**, and R. D. Rogers, "Wound Dressings through an Ionic Liquid Process – Filling a Gap in the Wound Care Sector," Presented by G. Gurau before the 5th Congress on Ionic Liquids, COIL-5 (April 21-25, 2013), Algarve, Portugal, Abstract OP3.
 66. **J. Shamshina**, P. D. McCrary, O. A. Cojocaru, G. Gurau, and R. D. Rogers, "Formation of Pure Liquid Salt Forms from Active Pharmaceutical Ingredients to Establish New Drug Delivery Systems with Superior Properties," Presented by **J. Shamshina** before the 5th Congress on Ionic Liquids, COIL-5 (April 21-25, 2013), Algarve, Portugal, Abstract P85.
 67. N. Pogodina, E. Metwalli, P. Müller-Buschbaum, **J. Shamshina**, R. D. Rogers, and C. Friedrich, "Structure and Dynamics of Azolium-Azolate Ionic Liquids," Presented by N. Pogodina before the DFG-SPP 1191 Priority Program Spring 2011 meeting (March 30-31, 2011), Potsdam, Germany.
 68. **J. Shamshina**, M. Smiglak, D. M. Drab, and R. D. Rogers, "Energetic Ionic Liquids," Presented by **J. Shamshina** before the 241st ACS National Meeting (March 27-31, 2011), Anaheim, CA, United States, Abstract I&EC 107.
 69. **J. Shamshina**, H. W. H. Dykes, A. J. Reich, R. DiSalvo, M. Smiglak, and R. D. Rogers, "Catalytic Ignition of Ionic Liquids for Propellant Applications," Presented by **J. Shamshina** before the 4th Congress on Ionic Liquids (COIL-4) (June 15-18, 2011), Washington, DC, United States, Abstract 11.
 70. N. V Pogodina, E. Metwalli, P. Müller-Buschbaum, G. Dlubek, **J. Shamshina**, R. D Rogers, and C. Friedrich, "Molecular Structure and Dynamics of Azolium-Azolate Ionic Liquids," Presented by N. V. Pogodina before the 4th Congress on Ionic Liquids (COIL-4) (June 15-18, 2011), Washington, DC, United States, Abstract 54.
 71. O. A. Cojocaru, **J. L. Shamshina**, J. P. Edgeworth, G. Gurau, R. S. Ruoff, and R. D. Rogers, "Improved Electrical Energy Storage with Electrochemical Double Layer Capacitance Based on Novel Carbon Electrodes," Presented by O. A. Cojocaru before the 4th Congress on Ionic Liquids (COIL-4) (June 15-18, 2011), Washington, DC, United States, Abstract 160.
 72. R. D. Rogers, M. Smiglak, and **J. Shamshina**, "Azolium Azolate Ionic Liquids from Reactions of Neutral Azoles with 1,3-Dimethylimidazolium-2-carboxylate, 1,2,3-Trimethylimidazolium Hydrogen Carbonate, and *N,N*-Dimethylpyrrolidinium Hydrogen Carbonate," Presented by R. D. Rogers before the 2010 International Chemical Congress of Pacific Basin Societies, Pacifichem 2010 (2010), Honolulu, HI, Abstract ENVI 237.

73. D. M. Drab, **J. L. Shamshina**, M. Smiglak, C. C. Hines, D. B. Cordes, R. D. Rogers, "Establishing a Flexible Synthetic Design Platform for Multi-Heterocyclic Ionic Liquids: Introduction of Concept and Initial Demonstration," Presented at 13th Graduate Student Association Graduate Research and Thesis Conference (March 27, 2010), Tuscaloosa, AL, United States.
74. M. Smiglak, G. Gurau, D. M. Drab, **J. L. Shamshina**, S. P. Kelley, V. Cocalia, S. T. Griffin, A.-V. Mudring, and R. D. Rogers, "Crystallization of Actinides from Ionic Liquids," Presented at 239th ACS National Meeting (March 21-25, 2010), San Francisco, CA, United States, Abstract NUCL 16.
75. R. D. Rogers, K. Bica, G. Gurau, M. Smiglak, H. Rodríguez, and **J. Shamshina**, "Ionic Liquids at the Intersections," Presented by R. D. Rogers before the 3rd International Congress on Ionic Liquids (COIL-3) (May 31 - June 4, 2009), Cairns, Australia, Abstract Oral 41.
76. W. L. Hough-Troutman, **J. Shamshina**, M. Smiglak, and R. D. Rogers, "The Synthesis and Characterization of Caine Ionic Liquids," Presented by W. L. Hough-Troutman before the 3rd International Congress on Ionic Liquids (COIL-3) (May 31 - June 4, 2009), Cairns, Australia, Abstract Poster 325.
77. W. L. Hough-Troutman, C. Troutman, M. Smiglak, **J. Shamshina**, D. Daly, and R. Rogers, "PDH Technologies, Inc. Experience in Raising Funds in a University Environment," Presented by W. L. Hough-Troutman before the before the 238th ACS National Meeting (August 16-20, 2009), Washington, DC, United States, Abstract BMGT 10.
78. J. M. Carr, T. S. Snowden, **J. L. Shamshina**, "A Potent COX-2 Inhibitor," Presented by J. M. Carr before the 237th ACS National Meeting (March 22-26, 2009), Salt Lake City, UT, United States, Abstract ORGN-18.
79. **J. Shamshina**, T. Snowden, "Concise Approaches to Heterocycles from 4-(Trichloromethyl)-2-Oxetanone," Presented by **J. Shamshina** at 235th ACS National Meeting (April 6-10, 2008), New Orleans, LA, United States, Abstract ORGN-21.
80. T. S. Snowden, L. Cafiero, **J. Shamshina**, "The Alabama Experimental Program to Stimulate Competitive Research (Alabama EPSCoR)," Presented by T. Snowden at 2008 Annual Alabama EPSCoR Conference and Stakeholder Symposium (July 22-24, 2008), Montgomery, AL, United States.
81. T. Snowden, **J. L. Shamshina**, L. Cafiero, "New Synthetic Applications of Trichloromethyl Carbinols," Presented by T. Snowden at 59th Southeast Regional Meeting of the American Chemical Society (October 24-27, 2007), Greenville, SC, United States.
82. T. Snowden, L. Cafiero, **J. Shamshina**. "New general synthetic methods via Trichloromethyl Carbinols," Presented by T. Snowden at 234th ACS National Meeting (August 19-23, 2007), Boston, MA, United States.
83. T. Snowden, **J. Shamshina**, L. Cafiero, "New Practical Synthetic Applications of Trichloromethyl Carbinols," Presented by T. Snowden at 58th Southeast Regional Meeting of the American Chemical Society (November 1-4, 2006), Augusta, GA, United States.
84. T. Snowden, **J. Shamshina**, "Alkenyl Trichloromethyl Carbinols: Convenient Precursors to Heterosubstituted (*E*)-Enoates," Presented by T. Snowden at 57th Southeast/61st Southwest Joint Regional Meeting of the American Chemical Society (November 1-4, 2005), Memphis, TN, United States.

**GRADUATE STUDENTS COMMITTEE
COMPLETED**

Chair:	total of ___ 0 ___
Co-Chair: M.S. Nur Uddin	total of ___ 1 ___ Completed in 2023. Title of thesis: Cotton Cellulose Dissolution and Transformation to Bioplastic. Plant and Soil Science, Texas Tech University.
Committee Member: M.S. Maliha Marzana	total of ___ 2 ___ Completed in 2022. Title of thesis: FTIR microspectroscopy as a tool to investigate the origin of seed coat fragment generation and its dependency on cotton cultivars. Plant and Soil Science, Texas Tech University.
Ph.D. Shaida Sultana Rumi	Completed in 2023. Title of thesis: Delignification of Industrial Hemp Bast Fibers Using "Green" Solvent. Plant and Soil Science, Texas Tech University.
Dean Representative: Sekhon Jagdeep-Kaur	Completed in 2023. Title of thesis: Understanding structure-property relationships and the dynamics of 1-ethyl-3-methylimidazolium methyl phosphonate and its mixture with 1-n-alkylimidazoles cosolvents using electrochemical impedance and pulse field gradient spin echo NMR spectroscopy. Chemistry and Biochemistry, Texas Tech University.

IN PROGRESS:

Chair:	total of ___ 4 ___
M.S. Turna Basak	(Thesis) Anticipated completion: Fall 2024. Title of thesis: Enhancing porosity and surface area of chitin for tissue engineering application.
Akhiri Zannat	(Thesis) Anticipated completion: Spring 2025. Title of thesis: Isolation of chitin and chitin-glucan complexes (CGC) from edible mushrooms.
Ayla Loughry	(Non-Thesis) Anticipated completion: Spring 2025.
Ph.D.	

CURRICULUM VITAE

Julia L. Shamshina, PhD

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URL: <https://sites.google.com/view/julia-shamshina-personal/>

Reshma Panackal Shibu	(Thesis) Anticipated completion: Spring 2025. Title of thesis: Chitin Nanomaterial Platform: Preparation, Applications, and LCA analysis
Co-Chair:	total of <u> 0 </u>
Committee Member:	total of <u> 2 </u>
M.S.	
Nur Hendri Wahyu Firdaus	Anticipated completion: Fall 2024. Title of thesis: Evaluating the thermoforming and barrier properties of recycled cellulosic packaging.
Ph.D.	
Amir Shahin Shamsabadi	Anticipated completion: Spring 2026.

UNDERGRADUATE ADVISING

Alexander Shkuratov	(Spring 2023 – present): Department of Chemistry and Biochemistry, Texas Tech University. Research Project: Ionic Liquids for Realization of Chitin Nanomaterials Platform: Closer Look at the Cost Structure. Funded by Undergraduate Research & Creative Activities (TrUE) program, fund matching.
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FUNDING (AWARDED, TEXAS TECH UNIVERSITY)

Total: \$192,010

1. NSF Major Research Instrumentation (MRI) Program “Equipment: MRI: Track 1 Acquisition of a MALDI-TOF/FTIR System to Support Course-Based Undergraduate Research Experiences in Biological and Computational Sciences at an HIS,” 10/01/23 - 09/30/26, **\$349,549**, co-PI, 20%. **Instrument award, \$69,910.**
2. BastCore, private industry funding. “Hemp Processing Innovations,” 09/01/22 – 12/31/22, \$35,000, PI, 50%; **Amount credited to J. L. Shamshina \$17,500.**
3. BastCore, private industry funding. “Hemp Processing Innovations,” 01/01/22 – 08/31/22, \$97,612, PI, 50%; **Amount credited to J. L. Shamshina \$48,806.**
4. NSF I-CORPS “NSF I-CORPS: NanoChit - Next Generation of Green and Sustainable Biofillers,” 11/01/2022 – 10/30/2024, \$49,995, PI, 100%; **Amount credited to J. L. Shamshina \$49,995.**
5. Texas Tech University, Office for Research and Innovation, “3D-printing of Biopolymers for Biomedical Applications,” Initiation of new lines of research (Research Seed funding, one-time award, 2022), \$3,800; **Amount credited to J. L. Shamshina \$3,800.**
6. TTU Open Access Publication Initiative “Production and Surface Modification of Cellulose Bioproducts”, \$1,000; 2021. **Amount credited to J. L. Shamshina \$1,000.**
7. TrUE Undergraduate Project Funding Award, \$1000, May 2023. **Amount credited to J. L. Shamshina \$1,000.**

COMPLETE LIST OF GRANT APPLICATIONS:

TOTAL NO OF PROPOSALS: 7.45

TOTAL FIRST YEAR REQUESTS: \$1,610,006.41
TOTAL REQUESTED: \$3,979,502.32

2023: Texas Tech University, Fiber and Biopolymer Research Institute:

1. USDA-NIFA-AFRI “Hemp hurd as a sustainable source for flexible eco-friendly food packaging films: meeting demand of circular economy,” 01/01/2024 – 12/31/2028, \$599,987, PI, 70% (Pending);
2. USDA-NIFA-AFRI “Optimizing Industrial Hemp Production System Efficiency in Texas High Plains,” 01/01/2024 – 12/31/2028, \$749,997, co-PI, 5% (Pending);
3. NSF Major Research Instrumentation (MRI) Program “Acquisition of an 800 MHz Nuclear Magnetic Resonance Spectrometer with liquids and solids capability for Chemical, Biological, and Materials Research,” 01/24/23 – 12/31/27, \$2,815,553, co-PI, 10% (Resubmission, Pending);
4. **NSF Major Research Instrumentation (MRI) Program “Equipment: MRI: Track 1 Acquisition of a MALDI-TOF/FTIR System to Support Course-Based Undergraduate Research Experiences in Biological and Computational Sciences at an HIS,” 10/01/23 – 09/30/26, \$349,549, co-PI, 10% (Awarded);**
5. NSF Major Research Instrumentation (MRI) Program “Acquisition of an 800 MHz Nuclear Magnetic Resonance Spectrometer with liquids and solids capability for Chemical, Biological, and Materials Research,” 09/01/23 – 08/30/26, \$2,815,553, co-PI, 10% (Declined).

2021/2022: Texas Tech University, Plant and Soil Science, Fiber and Biopolymer Research Institute:

1. **BastCore, private industry funding. “Hemp Processing Innovations,” 09/01/22 – 12/31/22, \$35,000, PI, 50% (Awarded);**
2. **BastCore, private industry funding. “Hemp Processing Innovations,” 01/01/22 – 08/31/22, \$97,612, PI, 50% (Awarded);**
3. **NSF I-CORPS “NSF I-CORPS: NanoChit - Next Generation of Green and Sustainable Biofillers,” 1/01/2023 - 12/31/2023, \$49,995, PI, 100% (Awarded);**
4. USDA-AFRI-AgriLife, USDA-NIFA Cooperative State Research Ed & Extension Service “Optimizing Industrial Hemp Production System Efficiency in Texas High Plains,” 1/01/2023 - 12/31/2027, \$749,992, co-PI, 5% (Declined);
5. USDA-NIFA-AFRI “Eco-Friendly Smart Substitutes to Single-Use Plastic Packaging: Meeting Demand of Circular Economy,” 01/2023 – 12/2027, \$650,000, PI, 50% (Declined);
6. NSF Convergence, “Bioplastic Packaging of the Future: Adhering to the Principles of a Circular Economy,” 1/01/2023 - 12/31/2023, \$750,000, PI, 50% (Declined);
7. USDA “Climate Smart Commodities Small Producer Pilot Planning Proposal for the Automotive and Textile Industries,” 01/2023 – 12/2027, \$380,233, co-PI, 50% (Declined);
8. USDA “Industrial Hemp Infrastructure: Developing Processing Capacity to Link Growers and Evolving Markets,” 01/2023 – 12/2027, \$1,300,860, co-PI, 50% (Declined);
9. NSF FMRG “FMSG: Development and Adoption of Chitin Nanofillers,” 01/2023 – 12/2024, \$499,828, PI, 50% (Declined);
10. NSF DMR Biomaterials Program, “Three-Dimensional Cell Culture Matrices for Biomedical Applications,” 09/2022 – 08/2024, \$397,249, PI, 50% (Declined);

11. **Texas Tech University, Office for Research and Innovation, “3D-printing of Biopolymers for Biomedical Applications,” Initiation of new lines of research (Research Seed funding, one-time award), \$3,800 (Awarded);**
12. NSF Advanced Manufacturing “The Renaissance of Industrial Hemp,” 09/2022 – 08/2024, \$268,405, PI, 50% (Declined);
13. USDA-NIFA-AFRI “Bioplastic Films of the Future: Adhering to the Principles of a Circular Economy,” 01/2022 – 12/2025, \$650,000, PI, 25% (Declined);
14. USDA-NIFA Cooperative State Research Ed & Extension Service “Optimizing Industrial Hemp Production System Efficiency in Texas High Plains, 01/2022 - 12/2026, \$750,000, co-PI, 5% (Declined);
15. NSF FMSG Bio: “The Renaissance of Industrial Hemp,” 01/2022 – 12/2023, \$403,184 (Declined);
16. USDA-NIFA-AFRI “Fiber Extraction from Industrial Hemp for Sustainable Textile Production,” 01/2022 – 12/2025, \$821,837, co-PI, 25% (Declined).

Pre-Hire

Other grants (PI, co-PI and participated in preparation):

2020: 525 Solutions, Inc., Tuscaloosa, AL/ Wyonics, LLC (spin-off of 525 Solutions, Inc.), Laramie, WY:

- NSF FMRG: “A New Model for Manufacturing a Renewable Future,” 01/2021 – 12/2025, \$2,750,000;
- NSF Rapid 2020, NSF SBIR “SBIR Phase I: COVID-19 Bench to Pilot Scale Prototype for Electrospinning of Nanofibrous Face Filter Masks for Air Filtering SARS-CoV-2 by a Combination of Physical Barriers and Adhesion,” 09/2020 – 08/2021, \$255,986;
- Department of Defense – DHA SBIR “Chitin-Based Bio-composites for Advanced Burn Wound Management,” 09/2020 – 08/2022, \$1,100,000;
- National Institutes of Health SBIR: “Antiviral Ionic Liquids - A Pipeline of Approved Drugs to Increased Efficacy,” 09/2020 – 02/2021, \$256,083;

2016 – 2017: McGill University, Montreal, QC, Canada:

- Proposal in response to opportunity “Networks of Centres of Excellence of Canada: The International Knowledge Translation Platforms (NCE-IKTP) Initiative” entitled: “Global Sustainability Network: Roadmap to the Sustainocene,” 09/2016 – 08/2020, CAD\$1,600,000, PI: Rogers, R. D.
- Canada Foundation for Innovation, CFI. “McGill Discovery Center for Green Manufacturing” (Project number 36048, Innovation Fund 2017). Total project cost: CAD\$10,100,710, Amount requested from the CFI: CAD\$4,040,242 (40%), PI: Rogers, R. D.
- McArthur Foundation: 100&Change. A competition for a \$100 million grant to fund a single proposal that promises real and measurable progress in solving a critical problem of our time, McGill, 2017, PI: Rogers, R. D.

2012 – 2016: 525 Solutions, Inc., Tuscaloosa, AL:

Independent SBIRs/STTRs:

- DOE SBIR Program, Phase II proposal in response to opportunity number DE-FOA0001072 (Topic 19 “Advanced technologies for nuclear energy,” subtopic g “Separations and Waste Forms for Advanced Domestic Fuel Cycles”) entitled “Bench to pilot scale prototype for electrospinning biorenewable chitin sorbents for uranium from seawater: Process development, cost, and environmental analysis,” 07/01/14 - 06/30/16, \$1,498,846, co-PI: 2014/15, PI: 2016, 12 months (Awarded);
- USAMRAA \$1,499,976, in response to opportunity number W81XWH- 13-CCCRPCCIBPII entitled “Tailored Chitin Healing Membranes for the Treatment of Burn Wounds,” (submitted 10-16-13), PI, 9 months.
- NSF SBIR “Ionic liquids as combinative analgesic active pharmaceutical ingredients. New ways in pain management transdermal drug delivery,” 01/01/14-06/30/14, \$150,000, co-PI, 3.7 months;
- Nine Sigma “Improving the Onset of Action for Oral medications,” 03/2013 – 02/2014, \$221,353, PI, 7.5 months.
- USDA “Herbicidal Ionic Liquids Derived from Glyphosate with Improved Efficacy and Delivery,” 04/2013 – 11/2013, \$100,000, PI, 3 months;
- DOD Army SBIR Program “High Strength Chitin-Based Textiles for Low Cost, Biodegradable Parachutes,” 05/2013 – 03/2014, PI, \$150,000;
- DOD Air Force SBIR Program “Ionic Liquid Passivated Boron(0) nanoparticle - combustion enhancers for liquid hydrocarbon based fuels,” 05/2013 – 01/2014, \$149,999, co-PI, 3 months;
- DOD Army SBIR Program “Solution Spun Chitin/Cellulose Composite Fibers with Tunable Strength, Insect Repellency, and Antimicrobial Activity,” 05/2013 – 03/2014, \$149,999, co-PI, 2 months;
- NSF SBIR Phase II “SBIR Phase II - New Chitin/Alginate Biocomposites by Homogeneous Processing in Ionic Liquids: Disruptive Technology for Wound Care Application,” 06/2013 – 05/2015, \$500,000, co-PI, 5.5 months.
- NSF SBIR Phase II - New Chitin/Alginate Biocomposites by Homogeneous Processing in Ionic Liquids: Disruptive Technology for Wound Care Application 07/01/13 – 06/30/15, \$150,000, co-PI, 5.3 months;
- DOD Army STTR Phase I “Redox-active Organic Polymers as Electrode Materials in Rechargeable, Flexible Batteries,” 08/01/13-01/31/14, \$150,000, co-PI, 2 months;
- **Alabama Department of Commerce Innovation Fund (Subaward from The University of Alabama) “Continuous production of high purity chitin from shrimp and crab waste as a resource for high value biomedical applications,” 01/01/13-05/31/14, \$9,000, co-PI, (Awarded);**
- DOE SBIR Program – Phase I proposal in response to opportunity number DE-FOA0000628 “Designing a mini-pilot scale unit for extraction and electrospinning of chitin as an adsorbent for uranium from seawater,” 06/01/12-02/28/13, \$149,999, co-PI, 2.8 months (Awarded);
- NSF SBIR Program – Phase I/IB proposal in response to opportunity number NSF 11- 691 (Topic-Biological and Chemical Technologies; subtopic BM1 – Materials for Biomedical Applications) entitled “New Chitin/Alginate Biocomposites by Homogeneous Processing in Ionic Liquids: Disruptive Technology for Wound Care Application,” 01/01/12 - 06/30/12, \$149,926, co-PI, 2 months (Awarded);
- DHP SBIR, H132-014-0166 entitled “Tailored Chitin Healing Membranes for the Treatment of Battlefield Burned Wounds” 01/2014 – 08/31/2014, co-PI.

- DOE SBIR/STTR 3b “Design and Fabrication of Continuous Microwave Systems Process for Biomass Conversion,” PI (submitted 02-01-2013).

2008 – 2010; 2012-2013, The University of Alabama (PDRA and Research Associate (50% FTE))

The University of Alabama Subcontracts:

- NSF SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to opportunity number NSF 09-609 (Section Biotechnology and Chemical Technologies, subsection BT9 Drug Delivery and Drug Discovery) entitled “Ionic liquids as combinative analgesic active pharmaceutical ingredients. New ways in pain management”; \$49,924 (submitted 12/03/09), 1 month;
- DOE SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to opportunity number DE-FOA-0000161 (Topic 22-Advance Coal Research, subtopic b – Alternative Fuels: Catalytic Reaction Processing of Coal and Biomass in Ionic Liquids) entitled “Catalytic Cleavage of Lignin-Carbohydrate Bonds in Ionic Liquid Solutions of Biomass Leading to Lignin, Cellulose, and Hemicellulose Fractionation”; \$29,999 (submitted 11/20/09), 1 month;
- NSF STTR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to opportunity number NSF 09-605 (subtopic Bio-inspired Materials and Systems (BMS)) entitled “New Chitin/Alginate Bio-composites for Wound Care Application by Homogeneous Processing in Ionic Liquids with Biologically Active Additives,” \$49,999 (submitted 11/17/09), 1 month;
- ARMY SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to topic A09-168 entitled “Ionic liquid based antimicrobial coatings for medical shelters”; \$23,228 (submitted 09/22/09), 0.5 month;
- NASA SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to topic S3.02 entitled “Thermal conductivities of ionic liquid-regolith mixtures; Improving heat transfer for innovative thermal and power systems at the Lunar surface”; \$33,181 (submitted 09/03/09), 1 month (Awarded);
- USDA SBIR Program – Phase I proposal with Sutterlin Research LLC (UA Subcontract) in response to opportunity number USDA-CSREES-SBIR-002363 (subsection 8.8 Biofuels and Biobased Products) entitled “Ionic Fluids Used for Biomass Processing”; \$29,999 (submitted 09/03/09), 1 month;
- USDA SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to opportunity number USDA-CSREES-SBIR-002363 (subsection 8.2 Plant production and Protection-Biology) entitled “Herbicidal Ionic Liquids Derived from Dicamba with Improved Efficacy and Delivery”; \$29,966 (submitted 09/03/09), 0.5 month;
- National Science Foundation SBIR Program – Phase I proposal with 525 Solutions Inc. (UA Subcontract) in response to opportunity number NSF 09-541 (subsection BT.9 Biomaterials, Bioinspired Materials and Bio-based Materials) entitled “Ionic liquids as combinative analgesic active pharmaceutical ingredients. New ways in pain management”; \$48,375 (submitted 06/09/09), 1 month;
- Defense Advanced Research Projects Agency (DARPA) SBIR – Phase I with C3 Propulsion (Huntsville, AL) in response to opportunity SB091-013 (UA subcontract); “Innovative Energetic Ionic Liquid Monopropellants for High Energy Micro-Rocket Stages”, \$20,000

(submitted 01/15/09).

The University of Alabama Grants:

- Private Funding (amount undisclosed): Monsanto, Reliance, Abbott.
- Alabama Department of Commerce Innovation Fund (The University of Alabama). Continuous production of high purity chitin from shrimp and crab waste as a resource for high value biomedical applications,” 01/01/13-05/31/14, \$241,000 (Awarded);
- NSF unsolicited proposal, “Utilizing Low Melting Ionic Liquid Systems as Routes to New f-Element Chemistry,” 1/1/10-12/31/12, \$674,168; (Awarded);
- NIH Recovery Act Limited Competition: NIH Challenge Grants “The Design of Ionic Liquids Specifically for Use in Pharmaceutical Discovery, Production, and Utilization,” 09/01/09-08/31/11, \$976,547,
- NIH Recovery Act Limited Competition: NIH Challenge Grants, “Incorporating new technologies for Malaria drug discovery,” 09/01/09-08/31/11, \$248,796 (submitted 04/29/2009);
- Air Force Office of Scientific Research, “Developing Ionic Liquid Know-How for the Design of Modular Functionality, Versatile Platforms, and New Synthetic Methodologies for Energetic Materials,” 12/1/09-11/30/12; \$495,190 (Awarded);
- NSF-DFG, “International Collaboration in Chemistry: Utilizing Low Melting Ionic Liquid Systems as Routes to New f-Element Chemistry,” \$410,450 (submitted 01/30/09).
- DOE – NE University Programs (NEUP), “Capture of iodine from spent nuclear fuel off-gas using ionic liquids,” \$100,000 (Submitted 01/15/09).

SERVICES

Professional

Editorial Services

- Serving on Editorial Board of the “*Journal of Ionic Liquids*”; (<https://www.journals.elsevier.com/journal-of-ionic-liquids>).
- Serving on Editorial Board of the “*Frontiers in Chemistry: Molecular Liquids*”; (<https://www.frontiersin.org/journals/chemistry/sections/molecular-liquids>).
- Guest Editor for a special issue of *Molecules* (ISSN 1420-3049), the section “*Materials Chemistry*”. *Title*: “Recent Insights into Biopolymer Processing, from Preparation to Fundamental Properties and Industrial Applications,” September 2022 – January 2024.
- Nova Science Publishers, Editor, Book, “Properties and Applications of Ionic Liquids,” Pro Bono, collected book chapters, reviewed, sent for revisions, obtained revised materials, formatted manuscripts. (Released 2023).

Reviewing Services:

- Reviewer (Academic Journals, 22 academic journals total): 2022: 24 Manuscripts; 2023: 22 manuscripts
 - *Cellulose, Green Chemistry, Carbohydrate Polymers, Advanced Materials, Nature Nanotechnology, Journal of Environmental Chemical Engineering, ACS Sustainable Chemistry & Engineering, Frontiers in Chemistry (section Green and Sustainable Chemistry), Molecules, Crystals, ACS Chemical Reviews, One Earth, Chemical Communications, Advances in Polymer Technology, Journal of Cotton*

Science, Composites Part A, Nature Communications, Advances in Biomarker Sciences and Technology, Process Biochemistry, Current Results in Green and Sustainable Chemistry, SN Applied Sciences (SNAS), Agricultural and Food Chemistry.

- **Grant Proposal Reviewer:**
 - USDA SBIR-STTR 8.8 Phase I Panel (2023);
 - NSF SBIR Ad-Hoc Reviewer (2022);
 - National Research and Development Agency (ANID) of the Ministry of Science, Technology, Knowledge and Innovation of Chile (FONDECYT, CHEMISTRY 1 Group) (2021).

Service to Professional Organizations

- **Presider on Cellulose (CELL) Symposium "Advances in Renewable Materials"** ACS National Meeting & Exposition - American Chemical Society Spring 2022 (Mar 20-24, 2022, San Diego, CA).
- **Presider on Cellulose (CELL) Symposium "Advances in Renewable Materials"** 261st ACS National Meeting & Exposition - American Chemical Society Spring 2021 (April 12, 2021 - April 13, 2021, Virtual).

Meetings and Symposia Organized

1. **Organizer of Cellulose (CELL) Symposium "Advances in Renewable Materials"** ACS National Meeting & Exposition - American Chemical Society Spring 2024 (March 17-21, 2024), New Orleans, LA.
2. **Organizer 2023 Rocky Mountain ACS Regional Meeting Symposium "Renewable Materials from Biopolymers"** (September 15-17, 2023), Laramie, WY.
3. **Organizer of Cellulose (CELL) Symposium "Advances in Renewable Materials"** ACS National Meeting & Exposition - American Chemical Society Fall 2023 (August 13-17, 2023), San Francisco, CA.
4. **Organizer of Cellulose (CELL) Symposium "Advances in Renewable Materials"** ACS National Meeting & Exposition - American Chemical Society Spring 2023 (March 26-30, 2023), Indianapolis, IN.
5. **Organizer of Cellulose (CELL) Symposium "Advances in Renewable Materials"** ACS National Meeting & Exposition - American Chemical Society Spring 2022 (Mar 20-24, 2022), San Diego, CA.

Service to University

1. Served as Mentor under The TrUE Scholars program which supports first-year and current TTU students through the entire continuum of Undergraduate Research and Creative Activities (URCA), Summer 2023
2. Served as Dean's Representative for the thesis defense of PhD candidate Jagdeep Kuar Department of Chemistry and Biochemistry, Texas Tech University (Dissertation title: Understanding structure-property relationships and the dynamics of 1-ethyl-3-methylimidazolium methyl phosphonate and its mixture with 1-n-alkylimidazoles cosolvents using electrochemical impedance and pulse field gradient spin echo NMR spectroscopy) on June 22, 2023.

3. As a part of Strategic Initiative acted as a Member of the Search Committee for Assistant Professor of Fiber and Biopolymer Research Institute (August – December 2023);

Service to the College (College of Agricultural Sciences and Natural Resources): none

Service to the Department (Department of Plant and Soil Science, PSS)

1. Member of the Search Committee for Assistant Professor of Fiber and Biopolymer Research Institute (August – December 2023);
2. Served as a Guest Lecturer at the University of Mississippi, with a lecture titled "Translation of Academic Research. Sustainable Entrepreneurism: Developing a Business Around an Idea (June 14, 2022), Oxford, MS.

Service to the Community

1. Mentor (High School Senior Project 'Biopolymeric films') for a high school student (Amaya Salter, Lubbock High School) in April 2023.
2. Presentation before Texas Hemp Growers Association (THGA) Hemp ROW CROP Field Day, August 26, 2021, Meadow, TX.

MEDIA PRESENCE:

Television

- Sustainable energy: CNBC Special Report. "The future of nuclear power, part two: Sustainable Energy takes a look at nuclear power and the technology that makes it work." <http://www.cnbc.com/sustainable-energy-tv-shows/> (3:42 AM ET Thu, 3 Aug 2017)

Selected Press Releases:

National and international featured (links active):

- <https://www.acs.org/content/acs/en/pressroom/newsreleases/2018/october/acs-announces-2018-green-chemistry-challenge-award-winners.html>
- <https://cen.acs.org/environment/green-chemistry/2018-Green-Chemistry-Challenge-Awards/96/web/2018/10>
- <http://blog.braginfo.org/entry/acs-green-chemistry-challenge-awards>
- <https://www.jdsupra.com/legalnews/acs-green-chemistry-challenge-awards-95137/>
- <https://www.chemicalprocessing.com/industrynews/2018/green-chemistry-institute-names-challenge-award-winners/>
- https://www.richmond.com/opinion/our-opinion/bart-hinkle/a-barton-hinkle-column-chitin-company-in-chesterfield-moves-one/article_ea5ed0cc-d20c-5b27-865e-57f72a9382d8.html
- <https://www.seafoodnews.com/Story/1128404/Mari-Signum-Commercial-Chitin-Extraction-Plant-Transforming-Shrimp-Shells>
- <https://www.sciencenews.org/article/seafood-shells-chitin-plastic-food-waste>
- <https://businessalabama.com/entrepreneur-alchemy/>
- "Uranium from the sea," Chemistry & Industry **2016**, 80, 22–25. doi:10.1002/cind.808_8.x.
- <http://www.washingtontimes.com/news/2014/jul/30/researchers-aim-to-find-new-uses-for-shrimp-shells/>
- <http://www.clarionledger.com/story/news/2014/07/30/new-use-shrimp-shells-explored/13392711/>

CURRICULUM VITAE

Julia L. Shamshina, PhD

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URL: <https://sites.google.com/view/julia-shamshina-personal/>

- <http://www.shrimpnews.com/FreeReportsFolder/NewsReportsFolder/USAaUsingChitosanToExtractUranium.html>

State featured:

- <http://apr.org/post/ua-researchers-win-grant-shrimpuranium-project>
- <http://www.tuscaloosetimes.com/index.php/sid/223881063/scat/7e50c85536b0a892>
- <http://uanews.ua.edu/2014/07/shrimp-30000-volts-help-ua-start-up-land-1-5-million-for-uranium-extraction/>

Featured news release available online for only few months (pdf versions of some of the featured stories are available):

- <http://www.sfgate.com/business/energy/article/Researchers-aim-to-find-new-uses-for-shrimp-shells-5656855.php>
- <http://www.enewscourier.com/statenews/x449114859/Alabama-researchers-aim-to-find-new-uses-for-shrimp-shells>
- <http://www.tribtown.com/view/story/159f1a2ed5f44e8da31fa326106ac558/AL--New-Uses-for-Shrimp-Shells>
- <http://www.fresnobee.com/2014/07/30/4047125/researchers-aim-to-find-new-uses.html>
- <http://www.dailynewsen.com/science/shrimp-30000-volts-help-ua-start-up-land-15-million-for-uranium-extraction-h2522278.html>