

## Maria L. Auad, PhD

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### Specialty Areas

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Polymer material science, polymer composites and nanocomposites, control of microstructures & nanostructure in materials, self-assemblies, interpenetrating polymer networks, shape memory polymers, polymers for structural & biomedical applications, materials from renewable resources.

### Professional Preparation

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1989-1995 B.Sc. Chemical Engineering, University of Mar del Plata, Argentina  
1995-2000 Ph.D. Material Sciences, University of Mar del Plata, Argentina  
2000-2002 Postdoctoral scholar, Chemical Engineering Department, California Institute of Technology, CALTECH

### Appointments

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2017-Present Full Professor, Department of Chemical Engineering, Auburn University  
2015-Present Director, Center of Polymer and Advanced Composites, Auburn University  
2013-2015 Interim Department Chair, Department of Polymer and Fiber Engineering, Auburn University  
2015-2017 Associate Professor, Dep. of Chemical Engineering, Auburn University  
2010-2015 Associate Professor, Polymer and Fiber Engineering Department, Auburn University  
2006-2010 Assistant Professor, Polymer and Fiber Engineering Department, Auburn University  
2003 – 2006 Research Assistant, Dept. of Chemical Eng. and Materials Science, University of Southern California

### Honors and Awards

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1. Recipient of **2018 School of Engineering Senior Faculty Research Award** 2018  
2. Recipient of **2015 Women of Distinction Faculty Leadership Award**, given by the Auburn University Women's Resource Center 2015

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| <b>3. Mark A. Spencer Creative Mentorship Award</b> , Dr. Maria L. Auad – Mathew Halverson (undergraduate student)  | 2015      |
| <b>4. Awarded member of the Auburn University International Teaching Academy</b> ,<br><a href="http://www.auburn.edu/academic/international/ap/gta/">http://www.auburn.edu/academic/international/ap/gta/</a> | 2013-2016 |
| <b>5. 3M Non-Tenured Faculty Grant Award</b> , 3M New Environmentally Safe Barrier Materials, \$45,000  | 2009-2011 |
| <b>6. 2010 Outstanding Faculty Member</b> , Department of Polymer and Fiber Engineering, Auburn University  | 2010      |
| <b>7. M. C. GILL Corporation Fellowship</b> , University of Southern California   | 2002-2006 |
| <b>8. Women in Science and Engineering (WISE) USC Program</b> , University of Southern California   | 2006      |
| <b>9. Antorchas Foundation</b> , Argentina, research grant,   | 2000-2002 |
| <b>10. Third World Academy of Sciences (TWAS)</b> , Research Grant 97-267 RG/CHE/LA, refereed selection   | 1998-1999 |

## **Scholarly Contributions**

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### **Courses Taught**

CHEN 3370 - Phase and Reaction Equilibria  
 CHEN 5410/ 6410/6416 - Macromolecular Science and Engineering  
 PFEN 3100 – Fundamentals of Polymers  
 PFEN 3500/7310 - Structure and Properties of Polymers and Fibers  
 PFEN 4200 – Polymers from Renewable Resources  
 PFEN 4810/4820 - Polymer and Fiber Eng. Design I and II  
 PFEN 5300 – Rheology  
 PFEN 7950 – Graduate Seminar

### **PhD and Master Students whose Work has been Completed**

- 1. Mehul Barde**, MS\*/PhD, Polymer and Fiber Engineering, “Sustainable Resins, Polymers and Crosslinked Networks from Pyrolysis of Lignocellulosic Biomass”, Graduation Fall 2018, current job: Intel
- 2. Bernal Sibaja**, MS\*/PhD Polymer and Fiber Engineering, “Thermosetting Polymers from Renewable Resources”, Graduation Summer 2016, current job: Faculty, National Laboratory of Nano-Technology (LANOTECH), Costa Rica
- 3. Samantha Bird**, MS\*/PhD Polymer and Fiber Engineering, “Interpenetrating Polymer Networks with Polyurethane and Methacrylate-based Polymers’< graduation Summer 2013, current job: Apply Technical Services, Atlanta, GA
- 4. Christopher Ward**, Dr. Davis (Advisor) Dr. Auad (Co-Advisor), MS\*/PhD Polymer and Fiber Engineering, “Incorporation of Nanoparticles in Polymeric Materials for Medical Applications”, Graduation Summer 2013, current job: Solvay Specialty Polymers, Atlanta
- 5. Buket Demir**, MS\*/PhD Polymer and Fiber Engineering, “Synthesis and Characterizations of Novel Quaternary Ammonium Modified Antibacterial

Polyurethanes” graduation Fall 2012, current job Postdoctoral fellow Chemistry Department, AU

- 6. Cihan Uzunpinar**, MS\*/PhD Polymer and Fiber Engineering, “Carbon Nanofiller/ Epoxy Nanocomposites” graduation, Summer 2011, current job Ascend Performance Materials, Chattanooga TN
- 7. Tara Beth Richardson**, MS\*/PhD Polymer and Fiber Eng., “Nano-reinforced Shape Memory Polyurethane” graduation Fall 2009, current Job: Senior Eng. 3M Corporation
- 8. Ricardo Ballester Mendez**, MS Polymer and Fiber Engineering, “Sequential graft-Interpenetrating Polymer Networks based on Polyurethane and Acrylic/ester Copolymers”, Fall 2015
- 9. Ramis Boy**, MS Polymer and Fiber Eng., “Generic Films and Fibers from Polysaccharides: Chitosan and Alginate”, Summer 2011, Grad Student Univ. South Carolina.

Note: MS\*: Master (non-thesis) degree in Polymer and Fiber Eng. requires the student to work on a research project and finish the master program with 6 research credit hours and a final presentation (PFEN 7980 – Graduate project).

### **Current PhD and Master Students**

- 1. Nima Alizadeh**, PhD. Polymer and Fiber Engineering, “Interpenetrating Polymer Networks, started day: Fall 2016
- 2. Prutha Joshi**, PhD. Polymer and Fiber Engineering, Polymer based on Polysaccharides, started day Fall 2016
- 3. Archana Bansode**, PhD. Polymer and Fiber Engineering, Polymers from Renewable resources, started day Fall 2017
- 4. Tripp Hinkle**, PhD. Polymer and Fiber Engineering, Lignin based carbon fibers, started day Fall 2018

### **Students Awards**

- 1. Archana Basode and John Hinkle**, second place award for poster presentation on “**Electrospun and wet spun lignin derived carbon fiber precursors for conductivity applications**” presented at Thermal and Catalytic Sciences for Biofuels and Biobased Products Symposium 2018
- 2. Mathew Halvorson, Auburn University 2015, Mark A. Spencer Creative Mentorship Award**, 2015. (Also listed under Awards), April 2015.
- 3. Patrick Marshall, Award in poster competition**, Preparation of alginate/chitosan fibers for biomedical applications, Patrick Marshall, Bernal Sibaja, Edward Culbertson, Alejandro Aguilar, Jennifer Parker, Leonardo de la Fuente and Maria L. Auad, Science and Technology Open House. Montgomery, Alabama, February 7-8, 2014.
- 4. Bernal Sibaja, Award in poster competition**, Interpenetrating Polymer Networks from Biomaterials, Bernal Sibaja, Taylor Trippe, Ricardo Ballester, Maria L. Auad, Science and Technology Open House. Montgomery, Alabama, February 7-8, 2014.
- 5. Bernal Sibaja, Gold award for graduate technical paper/oral competition**, Interpenetrating Polymer Networks from Biomaterials, Bernal Sibaja, Taylor Trippe,

- Ricardo Ballesterro, Maria L. Auad, Society of Hispanic Professional Engineering Conference. Indianapolis, Indiana, October 31, 2013.
- 6. Christopher Ward**, one of fourteen engineering graduate students chosen to present research at Auburn University's Research Week, 2013.
  - 7. Bernal Sibaja, Departmental award in poster competition**, Preparation of alginate/chitosan fibers for biomedical applications, Bernal Sibaja, Edward Culbertson, Alejandro Aguilar, Jennifer Parker, Leonardo de la Fuente and Maria L. Auad, Fall 2013 Graduate Engineering Research Showcase. Auburn University, Alabama, October 24, 2013.
  - 8. Christopher Ward, Awarded Third Place engineering presentation at Auburn University's Research Week**, Auburn University, 2013.
  - 9. Christopher Ward Awarded a Round 7 Competitive Alabama EPSCoR Graduate Research Scholars Fellowship**, 2012 – 2013.

## **RESEARCH/CREATIVE WORK**

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### **Book Chapters**

- 1. Fracture and Failure Characterization of Transparent Acrylic Based Graft Interpenetrating Polymer Networks (Graft-IPNs)**, Balamurugan M Sundaram, Ricardo B Mendez, Hareesh V Tippur, Maria L Auad, Dynamic Behavior of Materials, Springer, Cham, Volume 1, 43-49, 2019.
- 2. Comparative Study of the Effects of Cellulose Nanowiskers and Microcrystalline Cellulose Addition as Reinforcement in Flexible Films based on Biopolymer Blends**, D.A. Paiva, R.R. Oliveira, M.W. Da Silva, M.L. Auad, V.K. Rangari, E.A.B. Moura, Characterization of Minerals, Metals and Materials, Edited by Ikhmayies, Li, Carpenetr, et all, TMS, The Minerals, Metals and Materials Society, 409-416, 2016.
- 3. Dynamic Fracture and Impact Energy Absorption Characteristics of PMMA-PU transparent Interpenetrating Polymer Networks (IPNs)**, K.C. Jajam, H.V. Tippur, S.A. Bird, M.L. Auad - Dynamic Behavior of Materials, Springer International Publishing Volume 1, Pages 277-284, 2014.
- 4. Chapter 13, Responsive Nano-cellulose Composites**, N.E. Marcovich, M.L. Auad, M.I. Aranguren, Volume 2: Handbook of Green Materials; Processing Technologies, Properties and Applications, Chief-Editor Kristiina Oksman, Luleå University of Technology, Sweden, Published, 2013. ISBN: 978-981-4566-45-2, May 2014.
- 5. Polyurethanes Reinforced with Nanocellulose Fibers**, M.L. Auad, M.A. Mosiewicki\*, N.E. Marcovich, Volume 1: Nanocellulose/ Polymer Nanocomposites: From Fundamental to Applications. Chief-Editor: Dr. Vijay Kumar Thakur, WILEY-Scrivener Publisher, January 2014.
- 6. Development and Characterization of a PU-PMMA Transparent Interpenetrating Polymer Networks (t-IPNs)**, K.C. Jajam, S.A. Bird, M.L. Auad, HV Tippur - Dynamic Behavior of Materials, Springer New York, Volume 1, Page 117-121, 2011.
- 7. Relation between Morphology and Thermal, Mechanical and Fracture Properties in Rubber Modified Divinylester Resins**, M.L. Auad, J. Borrajo, M.I. Aranguren,

Homolytic and Heterolytic Reactions. Problems and Solutions. Nova Science Publishers, New York, 2004.

**Publications** (61 Journal articles, 1864 total citation by April 1<sup>st</sup>, 2019, h-index 22, i10-index 41, results extracted from Google Scholar.)

- 1. Fast pyrolysis bio-oil from lignocellulosic biomass for the development of bio-based cyanate esters and crosslinked networks.** Barde M., Edmunds C. W., Labbé N., Auad M. L., *High Performance Polymers*. SAGE, 1-13, DOI: <https://doi.org/10.1177/0954008319829517>, 2019.
- 2. Crosslinked acrylic polymers from aqueous phase of biomass pyrolysis oil and acrylated epoxidized soybean oil.** Barde M., Avery K., Edmunds C. W., Labbé N., Auad M. L. *ACS Sustainable Chemistry and Engineering*, Volume 7, Issue 2, 2216-2224, 12/19/2018.
- 3. Semi-interpenetrating novolac-epoxy thermoset polymer networks derived from plant biomass.** Barde M., Celikbag Y., Via B., Adhikari S., Auad M. L., *Journal of Renewable Materials* 6 (7), 724-736, 2018.
- 4. Quasi-static and dynamic mechanical behavior of transparent graft-interpenetrating polymer networks (graft-IPNs),** Balamurugan M Sundaram, Ricardo B Mendez, Maria L Auad, Hareesh V Tippur, *Polymer Testing*, V. 70, 348-362., Elsevier, 2018.
- 5. Dynamical mechanical characterization of a nanostructured vibration damping layer,** J.P. Arenas, J.L. Castaño, ML Auad, *Journal of Physics*, IOP Publishing V. 1075, Issue 1, Pages 012027, 2018.
- 6. Synthesis and characterization of epoxy resins from fast pyrolysis bio-oil.** Barde M., Adhikari S., Via B., Auad M. L., *Green Materials* 6 (2), 76-84, 2018.
- 7. Development of antimicrobial-loaded polyurethane films for drug-eluting catheters.** Barde M., Davis M., Rangari S., Mendis H., De La Fuente L., Auad M. L., *Journal of Applied Polymer Science*, 135 (27), 46467, 2018.
- 8. Fast Pyrolysis Bio-oil as precursor of thermosetting epoxy resins,** B Sibaja, S Adhikari, Y Celikbag, B Via, ML Auad *Polymer Engineering & Science*, 58, (8) 1296-1307, 2018.
- 9. Synthesis and Characterization of Bio-oil-Based Self-Curing Epoxy Resin,** Yusuf Celikbag, Shatori Meadows, Mehul Barde, Sushil Adhikari, Gisela Buschle-Diller, Maria L Auad, Brian K Via, *Industrial & Engineering Chemistry Research*, 56, 33, 9389-9400, 2017.
- 10. Synthesis and Characterization of Interpenetrating Polymer Networks (IPNs) from Acrylated Soybean Oil and  $\alpha$ -Resorcylic Acid: Part 1. Kinetics of Network Formation,** B. Sibaja, C. Pereira Matheus, R. Ballester Mendez, R. Farag, M.L. Auad, *Journal of Renewable Materials*, 5, 3-4, 231-240, 2017.
- 11. Synthesis and Characterization of Interpenetrating Polymer Networks (IPNs) from Acrylated Soybean oil and  $\alpha$ -resorcylic Acid: Part 2. Thermo-mechanical Properties and Linear Fracture Mechanics,** B. Sibaja, C. Pereira Matheus, R. Ballester Mendez, R. Farag, M.L. Auad, *Journal of Renewable Materials*, 5, 3-4, 241-246, 2017.

12. **Sustainable products from bio-oils**, Bernal Sibaja Hernández, Mehul Barde, Brian Via, Maria L Auad, *MRS Bulletin*, 42, 5, 365-370, 2017.
13. **Pit membranes and their evolution in the Oleinae of the Oleaceae**, Chieuda Nguyen, Ashley Andrews, Pieter Baas, Jason E Bond, Maria Auad, Roland Dute, *IAWA Journal*, 38, 2, 201-219, 2017.
14. **Preparation and characterization of epoxy resin cross-linked with high wood pyrolysis bio-oil substitution by acetone pretreatment**, Yi Liu, Brian K Via, Yuanfeng Pan, Qingzheng Cheng, Hongwu Guo, Maria L Auad, Steven Taylor, *Polymers*, 9,3,106, 2017.
15. **The Effect of Ethanol on Hydroxyl and Carbonyl Groups in Biopolyol Produced by Hydrothermal Liquefaction of Loblolly Pine: <sup>31</sup>P-NMR and <sup>19</sup>F-NMR Analysis**, Y. Celikbag, B.K. Via, S. Adhikari, G. Buschle-Diller, M.L. Auad, accepted for publication in *Bioresources Technology*, 2016. (Contribution 30%, time cited: 0)
16. **Sequential Graft-interpenetrating Polymer Networks based on Polyurethane and Acrylic/ester Copolymers**, R. Ballesteros\*; B.M. Sundaram, H.V. Tippur, M.L. Auad, *Express Polymer Letters*, Volume 10 Issue: 3 Pages: 204-215 Published: MAR 2016.
17. **Preparation of Alginate - Chitosan Fibers with Potential Biomedical Applications**, B. Sibaja.\*; E. Culbertson\*, P. Marshall\*, R.M. Broughton, A. Aguilar Solano, M. Esquivel, J. Parker, L. De La Fuente, M.L. Auad, *Carbohydrate Polymers*, 10; 134:598-608, 2015.
18. **Pyrolysis oil substituted epoxy resin: Improved ratio optimization and crosslinking efficiency**, Y. Celikbag, T.J. Robinson, B.K. Via, S. Adhikari, M.L. Auad, *Journal of Applied Polymer Science* Volume: 132 Issue: 28, Article Number: 42239, 2015.
19. **Renewable Thermoset Copolymers from Tung Oils and Natural Terpenes**; B. Sibaja\*, J. Sargent\*, M.L. Auad, *Journal of Applied Polymer Science*, 131, 23, Article number 41155, 2014.
20. **Liquefaction and Substitution of Switchgrass (*Panicum Virgatum*) based bio-oil into epoxy resins**, N. Wei, B.K. Via, Y. Wang, T McDonald, M.L. Auad, *Industrial Crops and Products*, 57, 116–123, 2014.
21. **Seed-Mediated Growth of Gold Nanorods: Limits of Aspect Ratio Control**, C.J. Ward\*, R. Tronndorf\*, A.S. Eustes\*, M.L. Auad, E.W. Davis, *Journal of Nanomaterials*, Article number 765618, 2014.
22. **Pit Membranes of *Ephedra* Resemble Gymnosperms More Than Angiosperms**, R.R. Dute, L.A. Bowen, S. Schier, A.G. Vevon, T.L. Best, M.L. Auad, T. Elder, P. Bouche, S. Jansen. *International Association of Wood Anatomists Journal*, Volume 35, 3, 217-235, 2014.
23. **Tensile, Fracture and Impact Behavior of Transparent Interpenetrating Polymer Networks with Polyurethane-poly(methyl methacrylate)**, K. Jajam, S. Bird\*, M.L. Auad, H. Tippur, *Polymer Testing*, Volume: 32, Issue: 5, Pages: 889-900, 2013.
24. **Synthesis and Characterization of High Performance, Transparent Interpenetrating Polymer Networks with Polyurethane and Poly(methyl methacrylate)**, S.A. Bird\*, D. Clary\*, K.C. Jajam, H.V. Tippur, M.L. Auad, *Polymer Engineering and Science*, Volume: 53 Issue: 4 Pages: 716-723, 2013.

25. **Cellulose Reinforcement of Phenol Formaldehyde: Characterization and Chemometric Elucidation**, E. Atta-Obeng, B.K. Via, O. Fasina, M.L. Auad, W. Jiang, International Journal of Composite Materials, 3:61–8, 2013.
26. **Effect of SWCNT Dispersion on Epoxy Nanocomposite Properties**, C. Uzunpinar\*; M.A. Mosiewicki\*, M.L. Auad, Polymer Composites, Volume: **33** Issue: **4** Pages: **582-588**, 2012.
27. **Detecting Insect Infestation Using a Polymer Based Sensor Array**, K.A. Weerakoon, J. H. Shu, M. Park, M.L. Auad, B.A. Chin, Sensors and Actuators B 174, 506– 512, 2012.
28. **Effect of Active Layer Morphology on Poly3-Hexylthiophene Phytochemical Chemi-resistor Sensor Performance**, K.A. Weerakoon, M.L. Auad, S. Horikawa, B.A. Chin, IEEE Sensors Journal, 12: 10, 3062-3068, 2012.
29. **Shape Memory Segmented Polyurethanes: Dependence of Behavior on Nanocellulose Addition and Testing Conditions**, M.L. Auad, T. Richardson\*, M. Hicks\*, M.A. Mosiewicki\*, M.I. Aranguren, N.E. Marcovich, Polymer International, 61, 2, 321, 2012.
30. **Study of Nano-reinforced Shape Memory Polymers Processed by Casting and Extrusion**, T. Richardson\*, M.A. Mosiewicki\*, C. Uzunpinar\*, N.E. Marcovich, M. I. Aranguren, F. Kilinc-Balci, R.M. Broughton, M.L. Auad, Polymer Composites, 32 3 455-463, 2011.
31. **Polyaniline-modified Cellulose Nano-fibrils as Reinforcement of a Smart Polyurethane**, M.L. Auad, T. Richardson\*, W.J. Orts, E.S. Medeiros, L.H.C. Mattoso, M.A. Mosiewicki\*, N.E. Marcovich, M.I. Aranguren, Polymer International, 60, 5, 743-750, 2011.
32. **Effects of Surface Functionalization on the Surface Phage Coverage and the Subsequent Performance of Phage-immobilized Magnetoelastic Biosensors**, S. Horikawa, D. Bedi, S. Li, W. Shen, S. Huang, I. Chen, Y. Chai, M.L. Auad, M.J. Bozack, J.M. Barbaree, V.A. Petrenko, B.A. Chin, Biosensors & Bioelectronics, 26, 5, 2361-2367, JAN 15 2011.
33. **Photocurrent Generation from Porphyrin/Fullerene Complexes Assembled in a Tethered Lipid Bilayer**, K. Jiang, M.D. Smith, M.L. Auad, J.V. Ruppel, C. Kim, X.P. Zhang, M.D. Best, W. Zhan, Langmuir, 26, 19, 15671-15679, September 10, 2010.
34. **Functionalization of Carbon Nanotubes and Carbon Nanofibers used in Epoxy/Amine Matrices that Avoid Partitioning of the Monomers at the Fiber Interface**, M.L. Auad, M.A. Mosiewicki\*, C. Uzunpinar\*, R.J.J. Williams, Polymer Engineering and Science, 50, 1, 183-190 2010.
35. **Nanocomposites Made from Cellulose Nanocrystals and Tailored Segmented Polyurethanes**, M.L. Auad, M.A. Mosiewicki\*, T. Richardson\*, M.I. Aranguren, N.E. Marcovich, Journal of Applied Polymer Science, 115, 2, 1215-1225, 2010.
36. **Single-wall Carbon Nanotubes/Epoxy Elastomers Exhibiting High Damping Capacity in an Extended Temperature Range**, M.L. Auad, M.A. Mosiewicki\*, C. Uzunpinar\*, R.J.J. Williams, Composite Science and Technology, 69, 7-8, 1088-1092, 2009.
37. **Basalt Fiber–Epoxy Laminates with Functionalized Multi-walled Carbon Nanotubes**, W. Chen, H. Shen, M.L. Auad, C. Huang, S.R. Nutt, Composites: Part A, 40, 1082–1089, 2009.

38. **Synthesis and Characterization of a Single-Component Thermally Remendable Polymer Network: Staudinger and Stille Revisited**, E.B. Murphy, E. Bolanos, C. Schaffner-Hamann, F. Wudl, S.R. Nutt, M.L. Auad, *Macromolecules*, 41, 14, 5203-5209, 2008.
39. **Synthesis and Characterization of Organically Modified Attapulgite/Polyurethane Nanocomposites**, C. Wang, M.L. Auad, N.E. Marcovich, S.R. Nutt, *Journal of Applied Polymer Science* 109, 4, 2562-2570, 2008.
40. **Characterization of Nano-Cellulose Reinforced Shape Memory Polyurethanes**, M.L. Auad, V.S. Contos, S.R. Nutt, M. I. Aranguren, N.E. Marcovich, *Polymer International*, 57, 4, 651-659, 2008.
41. **Temperature, Conversion and Phase Separation Profiles during Mold Cure of a Modified Vinylyester Resin**, W.F. Schroeder, M.L. Auad, E.R. Soulé, *Polymer Engineering and Science*, 48, 1, 52-61, 2008.
42. **Shear-Induced Alignment of Smectic Side Group Liquid Crystalline Polymers**, S. Rendon, W.R. Burghardt, M.L. Auad, J.A. Kornfield, *Macromolecules* 40, 6624-6630, 2007.
43. **Synthesis and Properties of Epoxy-Phenolic Clay Nanocomposites**, M.L. Auad, S.R. Nutt, V. Pettarin, P.M. Frontini, *Express Polymer Letter*, 1, 9, 629-639, 2007.
44. **Mechanical Behaviors of Hybrid Composite Phenolic Foam**, A. Desai, M.L. Auad, H. Shen, S.R. Nutt, *Journal of Cellular Plastics*, 44, 1, 15-36, 2008.
45. **Flammability Properties and Mechanical Performance of Epoxy modified Phenolic Foams**, M.L. Auad, L. Zhao, H.B. Shen, S. Nutt, U. Sorathia, *Journal of Applied Polymer Science* 104, 3, 1399-1407, 2007.
46. **Short-Fiber-Reinforced Epoxy Foams**, M.V. Alonso, M.L. Auad, S. Nutt, *Composites Part A- Applied Science and Manufacturing* 37, 11, 1952-1960, 2006.
47. **Improving the Dispersion and Flexural Strength of Multiwalled Carbon Nanotubes-Epoxy Composites Through  $\beta$ -Hydroxyester Surface Functionalization Coupled with the Anionic Homopolymerization of the Epoxy Matrix**, W. Chen, M.L. Auad, R.J.J. Williams, S.R. Nutt, *European Polymer Journal*, 42, 2765-2772, 2006.
48. **Barrier Properties for Short-Fiber-Reinforced Epoxy Foams**, M. V. Alonso, M.L. Auad, U. Sorathia, N.E. Marcovich, S.R. Nutt, *Journal of Applied Polymer* 102, 4, 3266-3272, 2006.
49. **Cellulose Micro/Nanocrystals Reinforced Polyurethanes**, N.E. Marcovich, M.L. Auad, N.E. Bellesi, S.R. Nutt, M.I. Aranguren, *Journal of Materials Research*, 21, 4, 870-881, 2006.
50. **Rheological Study of the Curing Kinetics of Epoxy-Phenol Novolac Resin**, M.L. Auad, S. Nutt, P.E. Stefani, M.I. Aranguren, *Journal of Applied Polymer Science*, 102, 5, 4430-4439, 2006.
51. **Modeling the Compressive Properties of Glass Fiber Reinforced Epoxy Foam Using the Analysis of Variance Approach**, M.V. Alonso, M.L. Auad, S.R. Nutt, *Composites Science and Technology*, 66, 2126-2134, 2006.
52. **Effect of Mesophase Order on the Dynamics of Side Group Liquid Crystalline Polymers**, M.L. Auad, M.D. Kempe, J.A. Kornfield, S. Rendon, W.R. Burghardt, K. Yoon, *Macromolecules*, 38, 16, 6946-6953, 2005.



53. **Molecular Orientation of a Commercial Thermotropic Liquid Crystalline Polymer in Simple Shear and Complex Flow**, W.R. Burghardt, E. Brown, M.L. Auad, J.A. Kornfield, *Rheologica Acta*, 44, 446-450, 2005.
54. **Thermodynamic, Morphological, Mechanical, and Fracture Properties of Poly (methylmethacrylate) (PMMA) Modified Divinylester(DVE)/Styrene(St) Thermosets**, W.F. Schroeder, M.L. Auad, M.A. Barcia Vico, J. Borrajo, M.I. Aranguren, *Polymer*, 46, 7, 2306-2319, 2005.
55. **Morphology of Rubber Modified Vinyl Ester Resins Cured at Different Temperatures**, M.L. Auad, J. Borrajo, M.I. Aranguren, *Journal of Apply Polymer Science*, 89, 1, 274-283, 2003.
56. **Rubber Modified Vinyl Ester Resins of Different Molecular Weights**, M.L. Auad, M.P. Proia, J. Borrajo, M.I. Aranguren, *Journal of Materials Science*, 4117-4126, 2002.
57. **Quasibinary and Quasiternary Styrene, Dimethacrylte Resin, and CTBN (or VTBN) Liquid Rubber Systems: Phase Diagrams, Interaction Parameters and Cured Material Morphologies**, M.L. Auad, M.I. Aranguren, J. Borrajo, *Polymer*, 42, 15, 6503-6513, 2001.
58. **Liquid Rubber Modified Vinyl Ester Resins: Fracture and Mechanical Behavior**, M.L. Auad, P.M. Frontini, J. Borrajo, M.I. Aranguren, *Polymer*, 42, 8, 3723-3730, 2001.
59. **Analysis of the Styrene-Divinylester Copolymerization: Reaction Heats, Double Bonds Conversions and Average Sequence Lengths**, M.L. Auad, M.I. Aranguren, J. Borrajo, *Polymer*, 41, 9, 3317-3329, 2000.
60. **Curing Kinetics of Divinyl Ester Resins with Styrene**, M.L. Auad, M.I. Aranguren, G. Eliçabe, J. Borrajo, *Journal of Applied Polymer Science*, 74, 5, 1044-1053, 1999.
61. **Epoxy-Based Divinyl Ester Resin/Styrene Copolymers: Composition Dependence of the Mechanical and Thermal Properties**, M.L. Auad, M.I. Aranguren, J. Borrajo, *J Appl. Polym. Sci.*, 66, 6, 1059-1066, 1997.

## **Patents and Inventions**

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1. **Graft Interpenetrated Polymer Networks (G-IPN)**, M. L. Auad, H.V. Tippur, R.A.B. Mendez\* and B. M. Sundaram, Provisional US patent application no. 62/029,100, 2014. (80% contribution).
2. **Transparent Interpenetrating Polymer Networks with Polyurethane and Poly(Methyl Methacrylate)**, M.L. Auad, H. Tippur, D. Clary\*, S. Bird\*, K. Jajam, Auburn University Technology Disclosure Application # 61365162, filed at Auburn University, July 2010. (80% contribution).

## Grants and Contracts

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Total amount received from contracts and grants to date with Dr. Maria L. Auad as lead PI or significant Co-PI: \$4,267,500 (26 awards)

- 1. USDA, Forest Service, Lignin as Carbon Precursor to Fabricate Ultra-fine Carbon Fibers**, Auad, T Elder, \$250,000, 10/01/18 - 9/30/20
- 2. NSF Center for Sustainable Lightweight Advanced Materials (C-SLAM)**, Tuskegee University, Auburn University, Cornell University, AU-PI: M.L. Auad (Auburn University PI) \$400,000, (\$5,000,000 total funds), 10/01/18 - 09/30/23
- 3. IGP-Auburn University, Sustainable Feedstock based materials for 3D Manufacturing Technologies**, Auad, Adhikari, Via, \$80,000, 9/1/17-8/31/19
- 4. 100K Strong Americas, Fertilizer Technology - Existing and New Generation Novel Materials for Crop Use**, B. Guertal, M.L. Auad, \$25,000, 08/2018-07/2019
- 5. USDA-NIFA: Hydrophobic Bio-Oil-Epoxy Binders for Wood Composites**, PI: B. Via, Co-PI: M.L. Auad, S. Adhikari, Puettmann, \$481,539, 02/15/17 - 02/14/20.
- 6. USDA-NIFA: Formation of Phenolic Resin Based Interpenetrating Polymer Network (IPN) From Pyrolysis Oil**, PI: S. Adhikari, Co-PIs: M.L. Auad, X. Zhang, B. Via, \$498,158, 12/01/2014 - 11/30/2017.
- 7. Department of Defense (DOD)/ Department of the Army, Molecular Interpenetrated Polymer Composites (MIPC) for High-Strain Rate Applications: Development and Characterization of Novel Light Weight Transparent, Materials**, PI: H. Tippur, Co-PI: M.L. Auad, \$364,713, 07/16/2012 – 07/15/2016.
- 8. NSF-CREST: Center of Excellence in Nano-biomaterials Derived from Bio-Renewable and Waste Resources**, NSF, Research Consortium: Tuskegee University, Auburn University, Cornell University, University of Alabama at Birmingham. AU-PI: M.L. Auad (Auburn University PI) \$400,000, (\$5,000,000 total funds), 10/01/2011 - 09/30/2018.
- 9. National Science Foundation Pan-American Advanced Studies Institute Program (NSF-PASI), Polymer and Composite Materials from Renewable Resources and Biorefinery: from Chemistry to Applications**, PI: M.L. Auad (Auburn University), Co-PI: O. Rojas (North Carolina State University, NCSU), \$100,000, 10/1/2012 – 9/30/2013.
- 10. NASA-EPSCoR, Shape Memory Behavior Induced by UV Light**, PI: M.L. Auad, \$15,000, 9/1/2010-2/28/2013.
- 11. AU-IGP, Level 4, Nanoindentation System for Mechanical Characterization of Small Scale Materials**, PI: J. C. Suhling, Co-PI: M.L. Auad et al., \$125,000, 2013.
- 12. AU-IGP, Level 4, Acquisition of an Atomic Force Microscopy (AFM) from Bruker for Research and Education under AU Major Research Instrumentation program**, PI: W. Zang, Co-PIs, M. L. Auad, et al. \$120,000, 2013.
- 13. Auburn University-Intramural Grant Program (IGP), Bio Oil Based Epoxy Resins**, PI: Brian Via, Co-PI: M.L. Auad, \$7,498, 2012.
- 14. 3M Non-Tenured Faculty Grant Award, 3M Project New Environmental Safe Barrier Materials**, PI: M.L. Auad, \$45,000, 9/1/2009 – 8/30/2011.
- 15. Defense Threat Reduction Agency-Broad Agency Announcement (Phase 2) HDTRA1-08-10-BRCWMD, Processing and Dynamic Failure Characterization of**

- Novel Impact Absorbing Transparent Interpenetrating Polymer Networks (t-IPN)**, PI: H. V. Tippur, Co-PI: M.L. Auad, Auburn University, \$450,000, 9/1/2008 – 8/31/2010.
- 16. NSF Major Research Instrumentation Program (NSF-MRI), Acquisition of a State-of-the-Art X-ray Diffractometer for Research and Education.** PI: Z.Y. Cheng, Co-PIs: M.L. Auad, T. Albrecht-Schmitt, J.M. Barbaree, J.W. Fergus, \$275,847, 10/01/2009 - 12/31/2010.
  - 17. Colombian Government (COLCIENCIAS), Collaborative Work: University Pontificia Bolivariana-Auburn University\***, Development of Nano-structured Materials for Coronary Stent Applications, PIs: M.L. Auad (Auburn), P. Ganan (Colombia) \$132,000, 01/01/2009 - 12/31/2011.
  - 18. Department of Commerce (DOC), Novel Antimicrobial Polymers**, PI: M.L. Auad, \$100,000 10/01/2010 - 12/31/2011.
  - 19. AU-OVPR, Antimicrobial Polymer Systems**, PI: L. De La Fuente, Co-PI: M.L. Auad, \$6,000, 2011.
  - 20. Department of Commerce (DOC), Tailored Surface Reactivity of Carbon Nanotubes for Polymeric Composite Applications**, PI: M.L. Auad. \$120,000, 10/01/2009 - 12/31/2010.
  - 21. Department of Commerce (DOC), Analysis of the Nature of the Self-Assembly Phenomenon of Nano-fibers for Tissue Engineering and Drug Delivery**, PI: Y. El-Moghazy, Co-PI: M.L. Auad. \$120,000, 10/01/2009 - 12/31/2010.
  - 22. Program Raices, Biocomposites Nano and Micro Reinforced, PICT-2006-02153\***, Collaborative Work ARGENTINA-USA, The program includes money for travel. As part of this program, two professors visited Auburn University during 2009, PIs: M.L. Auad (Auburn) M.I. Aranguren and N.E. Marcovich (Argentina), \$ 23,000, 1/1/2009 - 12/31/2009.
  - 23. Department of Commerce (DOC), Novel Antimicrobial Polymers**, PI: M.L. Auad, Co-PI: R.M. Broughton, \$120,000, 10/01/2009 - 12/31/2010.
  - 24. Competitive Research Grant Auburn 2008, Novel Antimicrobial Polymers**, M.L. Auad, \$3,000, 2008.
  - 25. Auburn Mentoring Program 2007, Shape Memory Effect Induced by Ferromagnetic Nanoparticles**, M.L. Auad, \$3,000, 2007.
  - 26. Competitive Research Grant Auburn 2007, Shape Memory Polymers Reinforced with Ferromagnetic Nanoparticles**, M.L. Auad, \$3,000, 2007.

## Presentations

### Invited Seminars and Lectures (32 total)

- 1. Polymer for Advanced Applications: from Chemistry to Properties**, Maria L. Auad, University of Alabama at Birmingham, September 2018.
- 2. Novel thermoset polymeric networks from fast pyrolysis bio-oil.** Barde M., Sibaja B., Celikbag Y., Via B., Adhikari S., Edmunds W., Labbè N., Auad M. L. 253<sup>rd</sup> American Chemical Society, San Francisco, CA; April 2-6, 2017. Oral Presentation.

3. **Bio-Based Polymers based on Fast Pyrolysis Bio-oil**, M.L. Auad, invited keynote speaker, 7<sup>th</sup> Green Chemistry Conference, San Jose, Costa Rica, September 20-24<sup>th</sup>, 2016.
4. **Polymeric Materials: from Nano to Molecular Structures**, on-line talk, M.L. Auad, invited keynote speaker, Brazilian Nanotechnology network, FUNDACENTRO, <http://www.nanotecnologiadoavesso.org/tv/programa-nanotecnologia-do-avesso-n353>, March 14, 2016.
5. **Polymers for Advanced Applications**, M.L. Auad, keynote speaker, 6<sup>th</sup> International Conference on Science and Technology of Composite Materials, Buenos Aires, Argentina, May 7-8, 2015.
6. **New Frontiers in Polymer Science: Polymers for Advanced Applications**, M.L. Auad, invited keynote speaker, National University of Mexico, Guadalajara, Mexico October 19-22, 2015.
7. **Polymer for Advanced Applications: from “nano” to “molecular” arrangement**, M.L. Auad, invited speaker, Alabama State University, October 24<sup>th</sup>, 2015.
8. **The Future of Industrial Bio-refineries: from Energy to Products**, M.L. Auad, invited keynote speaker, XV ADAMS, Reuse of Maritime and Agricola Residues, San Jose, Costa Rica, November 24-25, 2015.
9. **Polymeric Materials: from Nano to Molecular Structures**, M.L. Auad, invited keynote speaker, Nano-Andes, November 23-27, 2015, San Jose, Costa Rica.
10. **New Frontiers in Polymer Science: Polymers from Renewable Resources**, M.L. Auad, Key Note Speaker, XIV SLAP/XII CIP Meeting, Porto de Galinhas, PE, Brazil, October 12-16, 2014.
11. **Bio-Based Thermosetting Epoxy Resins**, Bernal Sibaja\*, M.L. Auad, Forest Product Society, Atlanta, June 10-12, 2015.
12. **Shape Memory Polymers: Current Research and Future Applications**, M.L. Auad, Department of Materials Engineering, Auburn University, March 7, 2013, Invited Talk.
13. **New Frontiers in Polymer Nanocomposites Science: Current Research and Future Applications, Workshop: Nano-Bio technology**, M.L. Auad, Invited talk. Managua Nicaragua, May 5-6 2014.
14. **Polymers for Advanced Applications: Interpenetrating Polymer Networks (IPNs)**, M.L. Auad, Invited talk, University of South Florida (USF), April 10-11, 2014.
15. **Shape Memory Polymers: Current Research and Future Applications**, M.L. Auad, Department of Materials Engineering, Auburn University, Invited talk, March 7, 2013.
16. **Interpenetrating Polymer Networks from Natural Sources**, M.L. Auad, Society of Hispanic Professional Engineers Conference. Invited talk, Indianapolis, Indiana, October 31, 2013.
17. **Novel Polymeric Materials from Renewable Resources**, M.L. Auad, Society of Hispanic professional Engineers Conference, Fort Worth, Texas, November 15, 2012.
18. **Interpenetrating Polymer Networks**, M.L. Auad, Society of Plastic Engineering (SPE), Orlando, Florida, April 2-5, 2012.
19. **Shape Memory Polymers – Current Research and Future Applications**, M.L. Auad, Nano Science and Polymer Meeting, Costa Rica, Nov. 26-28, 2012.
20. **Polymers for Advanced Applications**, M.L. Auad, Department of Electrical Engineering, Auburn University, September 20<sup>th</sup> 2012.

21. **Polymers for Advanced Applications: Interpenetrating Polymer Networks (IPNs)**, M.L. Auad, Society of Hispanic Professional Engineers Conference. Fort Worth, Texas, November 15, 2012.
22. **Balance Life and Work**, M.L. Auad, Invited talk, Society of Hispanic professional Engineers Conference. Fort Worth, Texas, November 15, 2012
23. **Developments of Nanostructured Materials for Vascular Stent Applications**, H. Kerguelén\*, P. Gañan, N. Escobar, J. Bustamante, M.L. Auad, IV Bioengineering Colombian Meeting, September 2011, Bucaramanga, Colombia.
24. **Processing and Dynamic Failure Characterization of Novel Impact Absorbing and Transparent Interpenetrating Polymer Networks (t-IPNs)**, M.L. Auad, S. Bird\*, K. Jajam, H.V. Tippur, Defense Threat Reduction Agency (DTRA-DOD) Invited conference, Washington D.C., August 19-25, 2010.
25. **Novel Polyurethane Systems with Controlled Structures and Morphologies**, M.L. Auad, B. Demir\*, 3M Technical Meeting, St. Paul, Minnesota, USA, June 15-16, 2010.
26. **Damping Behavior in Carbon Nanotubes/Epoxy Elastomers**, M.L. Auad, American Society of Mechanical Engineering (ASME) National Meeting, Orlando, FL, United States, November 13-19, 2009.
27. **Polymer Self-assemblies**, M.L. Auad, REU-NSF, Invited Speaker, Department of Poultry Science, Auburn University, June 30, 2009.
28. **New Frontiers in Polymer Science: Polymer Self-assemblies**, M.L. Auad, Department of Materials Science, Auburn University, June 23, 2009.
29. **Interpenetrated Polymer Networks**, M.L. Auad, H. Tippur, Defense Threat Reduction Agency, Department of Defense (DTRA-DOD), Washington D.C., October 23-28, 2009.
30. **Polymer Nanocomposites: Shape Memory Polymers Reinforced with Carbon Nanotubes and Cellulose Nanocrystals**, M.L. Auad, Invited Lecture, Georgia Institute of Technology, Atlanta, GA, February 25, 2008.
31. **Shape Memory Polymers**, M.L. Auad, REU-NSF presentation, Department of Poultry Science, Auburn University, June 30, 2008.
32. **New Frontiers in Polymer Science, Polymer Nanocomposites**, M.L. Auad, Invited Lecture, Department of Materials Engineering, Auburn University, March 31, 2008.

#### Other Presentations (178 Total)

1. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (November 2018) “**Novel graft-interpenetrating polymer networks comprising polyurethane and acrylic copolymer for military applications**”, Chemical Engineering Open House 2018 (Poster), Auburn, AL
2. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (October 2018) “**Novel acrylic-polyurethane based graft-interpenetrating polymer networks for military applications**”, Graduate Engineering Research Showcase 2018 (Poster), Auburn, Alabama
3. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (October 2018) “**Novel graft-interpenetrating polymer networks consisting of polyurethane and acrylic**”

- copolymer**", Center for Polymers and Advanced Composites (CPAC) advisory board meeting 2018 (Poster), Auburn, Alabama
4. N. Alizadeh, M. Auad, (October 2018), "**Novel 3D printing inks for biomedical applications**", Three Minute Thesis (3MT) Competition 2018 (Presentation), Auburn, Alabama
  5. N. Alizadeh, B. Cleary, M. Auad, (October 2018) "**Cross-linkable hydrogels for 3D printing**", Thermal and Catalytic Sciences Symposium (TCS) 2018 (Poster), Auburn, Alabama
  6. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (July 2018.) "**Thermo-mechanical characterization of transparent acrylic-polyurethane based graft-interpenetrating polymer networks**", NanoBio Summit 2018, Montgomery (Poster), Alabama
  7. N. Alizadeh, M. Auad, (July 2018) "**Photo-curable inks for 3D printing**", CPAC Graduate Summer Seminar Series 2018 (Presentation), Auburn, Alabama
  8. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (March 2018) "**Graft-interpenetrating polymer networks comprising polyurethane and acrylic copolymer**", This is Research: Student Symposium 2018, Auburn (Presentation), Alabama
  9. N. Alizadeh, M. Auad, (March 2018) "**Cross-linkable Hydrogels for 3D Bioprinting**", American Chemical Society Spring 2018 National Meeting, New Orleans (Presentation), LA
  10. N. Alizadeh, V. Agrawal, A. Celestine, M. Auad, (March 2018) "**Acrylic-polyurethane based Graft-Interpenetrating Polymer Networks**", American Chemical Society Spring 2018 National Meeting (Poster), New Orleans, LA
  11. Prutha Joshi, Steven Breaux, Maria L. Auad, (March 2018), "**Synthesis of UV Curable Poly (ethylene glycol) diacrylate macromere-based semi-IPN hydrogels with polysaccharides**", American Chemical Society National Meeting (Oral), New Orleans, Louisiana.
  12. Prutha Joshi, Steven Breaux, Maria L. Auad, (March 2018), "**Synthesis of UV Curable PEGDA macromere-based hydrogels with polysaccharides**", This is Research Symposia (Oral), Auburn, Alabama.
  13. Prutha Joshi, Steven Breaux, Tanzina Azad, Maria L. Auad, (June 2018), "**Synthesis of IPN hydrogels with polysaccharides based on PEGDA macromere by UV Curing**", CPAC Summer Seminar Series (Oral), Auburn, Alabama.
  14. Prutha Joshi, Steven Breaux, Maria L. Auad, (June 2018), "**Synthesis of double network hydrogels with polysaccharides having UV Curable Poly (ethylene glycol) diacrylate as major macromere**", Nano-bio Summit (Poster), Montgomery, Alabama.
  15. Prutha Joshi, Steven Breaux, Maria L. Auad, (October 2018), "**Synthesis of UV-Curable poly(ethylene glycol) diacrylate macromere based double network hydrogel with polysaccharides**", TCS (Poster), Auburn, Alabama.
  16. Prutha Joshi, Steven Breaux, Maria L. Auad, (October 2018), "**Amalgamation of poly(ethylene glycol) diacrylate macromere with polysaccharides to produce UV-curable double network hydrogels for tissue engineering applications**", Graduate Engineering Research Showcase (Poster), Auburn, Alabama.

17. Archana Bansode, John Hinkle, Hyungseok Nam, Saravanan Shanmugam, Dr. Sushil Adhikari, Rohit Kanungo, Dr. James Radich, Dr. Ilari Flipponen, Dr. Maria L. Auad, (October 2018), “**Electrospun and wetspun lignin derived carbon fiber precursors for conductivity applications**”, Symposium on Thermal and Catalytic Sciences for Biofuels and Biobased Products (TCS), Auburn, Alabama. (Poster)
18. Archana Bansode, Stephen Adams, Mehul Barde, Dr. Thomas Elder, Dr. Maria L. Auad, (October 2018), “**Structural characterization of lignin for synthesis of lignin based epoxy resins**”, Graduate Engineering Research Showcase (CEGS) (Poster), Auburn, Alabama. (Poster)
19. Archana Bansode, Stephen Adams, Mehul Barde, Dr. Thomas Elder, Dr. Maria L. Auad, (November 2018), “**Structural characterization of lignin for synthesis of lignin based epoxy resins**”, Chemical engineering open house poster presentations, Auburn, Alabama. (Poster)
20. Archana Bansode, John Hinkle, Christopher Upp, Dr. Hyungseok Nam, Dr. Ilari Flipponen, Dr. Maria L. Auad, ( 2018), “**Use of Electrospinning and Wetspinning processing methods for the formation of carbon fibers from alkaline Lignin**”, This is Research Student Symposium, Auburn, Alabama. (Oral)
21. John Hinkle, Christopher Upp, Archana Bansode, Hyungseok Nam, Saravanan Shanmugam, Sushil Adhikari, Rohit Kanungo, James Radich, Ilari Filponnen, Maria L. Auad, (March 2018), “**Carbonization of Electrospun and Wetspun Lignin Based Fibers**” American Chemical Society Symposium (poster), New Orlean, Louisiana.
22. John Hinkle, Archana Bansode, Christopher Upp, Hyungseok Nam, Ilari Filponnen, Sushil Adhikari, Maria L. Auad, (March 2018) “**Manufacturing of Carbon Fibera from Electrospun and Wetspun Lignin Fiber**” This Is Research (poster), Auburn, Alabama.
23. John Hinkle, Archana Bansode, Christopher Upp, Hyungseok Nam, Ilari Filponnen, Sushil Adhikari, James Radich, Thomas Elder, Maria L. Auad, (October 2018) “**Development of Supercapacitors Using Renewable Carbon Fiber**” Graduate Research Symposium (poster), Auburn, Alabama.
24. John Hinkle, Archana Bansode, Christopher Upp, Hyungseok Nam, Ilari Filponnen, Sushil Adhikari, James Radich, Thomas Elder, Maria L. Auad, (October 2018) “**Development of Supercapacitors Using Renewable Carbon Fiber**” Chemical Engineering Open House (poster), Auburn, Alabama.
25. **Thermosetting bio-polymers from pyrolysis of lignocellulosic biomass**, Barde M, Celikbag Y, Edmunds Charles W., Labbè N., Adhikari S., Via B. K., Auad M. L. NanoBio Summit 2018, Montgomery, AL July 17-18, 2018. Poster presentation
26. **Development of sustainable, crosslinked polymers from pyrolysis of lignocellulosic biomass**, Barde M, Avery K., Celikbag Y, Edmunds Charles W., Labbè N., Adhikari S., Via B. K., Auad M. L CPAC Summer Seminar Series, Auburn University, Auburn, AL, May 31<sup>st</sup>, 2018. Oral presentation.
27. **Synthesis of olefins and subsequent polymers from low-value aqueous phase of bio-oil**, Barde M, Avery K., Edmunds Charles W., Labbè N., Auad M. L. This is Research: Student Symposium, Auburn University, Auburn, AL, March 26<sup>st</sup>, 2018. Oral presentation.

28. **Synthesis of unsaturated monomers from carbonyl compounds in pyrolytic bio-oil**, Avery K., Barde M., Auad M. L. This is Research: Student Symposium, Auburn University, Auburn, AL, March 26<sup>st</sup>, 2018. Poster presentation.
29. **Utilization of aqueous phase of biomass pyrolysis for synthesis of novel olefins and polyolefins**, Barde M., Avery K., Edmunds C., Labbè N., Auad M. L. 255<sup>th</sup> American Chemical Society, New Orleans, LA; March 18-22, 2018. Oral Presentation.
30. **High performance cyanate esters and poly(benzoxazine) from fast pyrolysis of lignocellulosic biomass**. Barde M., Edmunds C., Labbè N., Auad M. L. 255<sup>th</sup> American Chemical Society, New Orleans, LA; March 18-22, 2018. Poster presentation.
31. **Synthesis of unsaturated monomers from carbonyl compounds in pyrolytic bio-oil**, Barde M., Avery K., Edmunds C., Labbè N., Auad M. L. 255<sup>th</sup> American Chemical Society, New Orleans, LA; March 18-22, 2018. Poster Presentation.
32. **Biomass-derived thermoset polymers for high performance applications**. Barde M., Edmunds C., Labbè N., Auad M. L., Graduate Engineering Research Showcase 2017, Auburn University, Auburn, AL; November 9<sup>th</sup>, 2017. Poster Presentation.
33. **High performance plastic materials from biomass for aerospace applications**. Barde M., Auad M. L. 3-Minute Thesis, Auburn University, Auburn, AL; October 25<sup>th</sup>, 2017. Oral Presentation.
34. **High performance biomass-derived polymer networks**. Barde M., Auad M. L. Journey Through Science Day Event 2017, New York Academy of Sciences, New York City, NY; September 18<sup>th</sup>, 2017. Poster presentation.
35. **Epoxy-novolac thermoset polymers from biomass pyrolysis oil**. Barde M., Auad M. L. Chemical Engineering Open House, Auburn University, Auburn, AL; April 21<sup>st</sup>, 2017. Poster presentation.
36. **Epoxy-novolac thermoset polymers based on pyrolytic bio-oil.**, Barde M., Auad M. L. This is Research: Student Symposium 2017, Auburn University, Auburn, AL; April 13<sup>th</sup>, 2017. Oral Presentation.
37. **High performance bio oil-based polymers and resins**. Barde M., Auad M. L. Finish in 5, Auburn University, Auburn, AL; March 22<sup>nd</sup>, 2017. Oral Presentation.
38. **Fast pyrolysis bio-oil as precursor of thermosetting resins**. Barde M., Sibaja B., Auad M. L. 2016 AIChE Annual Meeting, San Francisco, CA, November 13-18, 2016. Poster Presentation.
39. **Development of bio-based novolac-epoxy interpenetrating polymer networks**. Barde M., Auad M. L., Graduate Engineering Research Showcase 2016, Auburn University, Auburn, AL.; October 20<sup>th</sup>, 2016. Poster Presentation.
40. **Synthesis and characterization of bionovolac-epoxy interpenetrating polymer networks**. Barde M., Auad M. L. 4<sup>th</sup> Annual NanoBio Summit 2016, Auburn University, Auburn, AL; October 13-14, 2016. Poster Presentation.
41. **Biomass pyrolysis oil derived phenol-formaldehyde polymers**. Barde M., Auad M. L., Tuskegee University, Tuskegee, AL. June 13<sup>th</sup>, 2016. Poster Presentation.
42. Prutha Joshi, Steven Breaux, Maria L. Auad, (November 2017), **"Synthesis of UV Curable Poly (ethylene glycol) diacrylate macromere-based hydrogels with polysaccharides"**, Graduate Engineering Research Showcase (poster), Auburn, Alabama.



43. Prutha Joshi, David Held, Maria Auad, (April 2017), "**Preparation of slow release encapsulated fertilizer and pesticides for soil remediation**", This is Research Symposia (oral), Auburn, Alabama.
44. Prutha Joshi, David Held, Maria L. Auad, (April 2017), "**Synthesis of slow release encapsulated bio-pesticide/fertilizer based on super-absorbent cross-linked alginate micro-beads**", American Chemical Society conference 2017 (poster), San Francisco, California.
45. Archana Bansode, Tripp Hinkle, Christopher Upp, Hyungseok Nam, Dr. Illari Flipponen, Dr. Maria L. Auad, **Lignin based carbon fibers produced by electrospinning and wet spinning**, GERS (Graduate Engineering Research Showcase) Auburn University, 2017
46. Nima Alizadeh, Asha-Dee Celestine, Vinamra Agrawal, Maria L. Auad, **Transparent acrylic-polyurethane based graft-interpenetrating polymer networks**, Graduate Engineering Research Showcase 2017, Auburn University, AL, USA, November 2017.
47. Nima Alizadeh, Asha-Dee Celestine, Vinamra Agrawal, Maria L. Auad, **Graft-interpenetrating polymer networks consisting of polyurethane and acrylic copolymer**, Chemical Engineering Open House 2017, Auburn University, AL, USA, April 2017.
48. Nima Alizadeh, Asha-Dee Celestine, Vinamra Agrawal, Maria L. Auad, **Thermo-mechanical characterization of acrylic-polyurethane based graft-interpenetrating polymer networks**, This is Research: Student Symposium 2017, Auburn University, AL, USA, April 2017.
49. Nima Alizadeh, Asha-Dee Celestine, Vinamra Agrawal, Maria L. Auad, **Characterization of graft-interpenetrating polymer networks with polyurethane and acrylic copolymer**, Weaver Lecture Series to feature international scientists Orlando Rojas and David Fowler, Auburn University, AL, USA, March 2017.
50. Mehul Barde, Charles Edmunds, Nicole Labbe, Maria L. Auad, **Biomass-derived thermoset polymers for high performance applications** (Poster), Graduate Engineering Research Showcase 2017, Auburn University, Auburn, AL; *November 2017*
51. Katrina Avery, Mehul Barde, Maria L. Auad, **Aqueous Phase of Biomass Pyrolysis Oil as a Raw Material for Polymer Synthesis** (Poster), 2017 Annual Student Conference, AIChE, Minneapolis, MN; *October 2017*
52. Montoia Davis, Mehul Barde, Maria L. Auad, **Assessment of Drug Diffusion of Sulfathiazole and Metronidazole from Polyurethane Films** (Poster), 2017 Annual Student Conference, AIChE, Minneapolis, MN; *October 2017*
53. Mehul Barde, Maria L. Auad, **High performance plastic materials from biomass for aerospace applications** (Oral), 3-Minute Thesis, Auburn University, Auburn, AL; *October 2017*
54. Mehul Barde, Maria L. Auad, **High performance biomass-derived polymer networks** (Poster), Journey Through Science Day Event 2017, New York Academy of Sciences, New York City, NY; *September 2017*
55. Mehul Barde, Maria L. Auad, **Epoxy-novolac thermoset polymers from biomass pyrolysis oil** (Poster), Chemical Engineering Open House, Auburn University, Auburn, AL; *April 2017*

56. Meahul Barde, Maria L. Auad, **Epoxy-novolac thermoset polymers based on pyrolytic bio-oil** (Oral), This is Research: Student Symposium 2017, Auburn University, Auburn, AL; *April 2017*
57. Montoia Davis, Meahul Barde, Maria L. Auad, **Drug Delivery Mechanism of Sulfathiazole from Polyurethane Films** (Poster), This is Research: Student Symposium 2017, Auburn University, Auburn, AL; *April 2017*
58. Meahul Barde, Bernal Sibaja, Yusuf Celikbag, Brian K. Via, Sushil Adhikari, Warren Edmunds, Nicole Labbe, Maria L. Auad, **Novel thermoset polymeric networks from fast pyrolysis bio-oil** (Oral), 253<sup>rd</sup> American Chemical Society, San Francisco, CA; *April 2017*
59. Meahul Barde, Maria L. Auad, **High performance bio oil-based polymers and resins.** (Oral), Finish in Five, Auburn University, Auburn, AL; *March 2017*
60. Montoia Davis, Meahul Barde, Maria L. Auad, **Drug Delivery Mechanism of Sulfathiazole from Polyurethane Films** (Poster), 2017 AIChE Southern Student Regional Conference, University of Tennessee, Knoxville, TN; *March 2017*
61. **Pyrolysis Bio-oil as Precursor of Polymeric Bio-Based Resins**, M.L. Auad, B. Sibaja\*, M. Barde\*, International Carbohydrate Symposium, ICS 2016, New Orleans, LA, July 17- 21, 2016. Oral presentation.
62. **Substitute Phenol with Bio-oil in the production of novolac resin.** Zhouhong Wang, S. Adhikari, M.L. Auad, M. Barde\* and M. McDonald. 14<sup>th</sup> International Symposium on Bioplastics, Biocomposites and Biorefining. Guelph, Canada. May 31<sup>st</sup>- June 3<sup>rd</sup>, 2016. Oral presentation.
63. **Design of Interpenetrated Superabsorbent Hydrogels Based on Cellulose and Alginate**, B. Sibaja\*, B. Cleary\*, P. Jimenez\*, M.L. Auad, ACS meeting, San Diego, California, March 13-17, 2016. Oral presentation.
64. **Renewable Resources as Precursors of Polymeric Bio-based Resins**, B. Sibaja\*, S. Adhikari, Y. Celikbag, B. Via, M.L. Auad, ACS meeting, San Diego, California, March 13-17<sup>th</sup>, 2016. Oral presentation.
65. **Development of Medicated Polyurethane Catheters**, M. Barde\*, Bianca Caruzi\*, B. Sibaja\*, C. Falkenberg, J. Coleman, M.L. Auad, EPSCOR, Tuskegee, Science and Technology Open House, Montgomery, AL, February 5<sup>th</sup>, 2016. Poster presentation.
66. **Generic films from alginate and chitosan**, Z. Davis\*, B. Sibaja\*, M.L. Auad, Science and Technology Open House. Montgomery, Alabama, February 2015. Poster presentation.
67. **Synthesis and Characterization of Interpenetrating Polymer Networks (IPNs) Using Biomass Derived Materials**, B. Sibaja\*, M.L. Auad, Science and Technology Open House. Montgomery, Alabama, February 2016. Poster presentation
68. **Renewable Resources as Precursors of Bio-based Thermosetting Resins**, B. Sibaja\*, M.L. Auad, ACS meeting, Denver, Colorado, March 22-26, 2015. Oral presentation
69. **Algae Bio-resources: Biorefinery of Micro and Macro Algae for Searching of New Materials**, P. Jimenez Bonilla\*, H. Harper\*, M.L. Auad, CREST Meeting, Tuskegee University, April 20-21, 2015. Poster presentation
70. **New Generation of Sustainable Polymeric Coatings from Algae**, M.L. Auad, 7th UTIB Brokerage Event, Bursa, Turkey, 27-29 May 2015. Poster presentation

71. **Tailored Shape Memory Polymers Reinforced with Nanoclays**, M.L. Auad, S. Bhullar, UTIB Brokerage Event, Bursa, Turkey, 27-29 May 2015. Poster presentation
72. **Slow Release Superabsorbent Polymer from Bio-oil**, M.L. Auad, 7th UTIB Brokerage Event, Bursa, Turkey, 27-29 May 2015. Poster presentation
73. **Engineering Center for Polymers and Advanced Composites**, M.L. Auad, Visit of Auburn University Delegation to West Pomeranian University of Technology (ZUT), Cracow University of Technology (Politechnika Krakowska) and Warsaw University of Technology (Politechnika Warszawska), July 7-16, 2015, Poland. Oral Presentation.
74. **Characterization of Novolac Polymers with Varying Amounts of Phenolic Compounds derived from Fast Pyrolysis Bio-oil**, M. McDonald, S. Adhikari, M.L. Auad, Southern Partnership for Integrated Biomass Supply Systems (IBSS) meeting, August 12-14, Auburn, AL, 2015. Oral Presentation.
75. **Design of hydrogels containing alginate and modified cellulose as superabsorbent materials**. P. Jimenez Bonilla\*, H. Harper\*, M.L. Auad, Auburn University 2015 Engineering Showcase Graduate, Auburn University, October 24, 2015. Poster presentation.
76. **Synthesis and Characterization of Polyurethane Catheters for Medical Applications**, M. Barde\*, M.L. Auad, Auburn University 2015 Engineering Showcase Graduate, Auburn University, October 24, 2015. Poster Presentation.
77. **Preparation of Alginate/Chitosan Fibers for Biomedical Applications**, P. Marshall\*, B. Sibaja\*, E. Culbertson \*, A. Aguilar \*, J. Parker, L. de la Fuente, M.L. Auad, Science and Technology Open House. Montgomery, Alabama, February 7-8, 2014. Poster presentation.
78. **Interpenetrating Polymer Networks from Biomaterials**, B. Sibaja\*, Taylor Trippe\*, R. Ballester\* and M.L. Auad, Science and Technology Open House. Montgomery, Alabama, February 7-8, 2014. Poster presentation.
79. **Sequential Graft-Interpenetrating Polymer Networks of Polyurethane and Acrylic/Vinyl Ester Based Copolymers**, R. Ballester\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, Science and Technology Open House. Montgomery, Alabama, February 7-8, 2014. Poster presentation.
80. **Interpenetrating Polymer Networks from Natural Sources**, M.L. Auad, American Chemical Society National Meeting. Dallas, Texas, March 16, 2014. Oral presentation.
81. **Preparation of Alginate/Chitosan Fibers for Biomedical Applications**, Patrick Marshall\*, B. Sibaja\*, E. Culbertson\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, American Chemical Society National Meeting. Dallas, Texas, March 16-20, 2014. Oral presentation.
82. **Sequential Graft-Interpenetrating Polymer Networks of Polyurethane and Acrylic/Vinyl Ester Based Copolymers**, R. Ballester\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, American Chemical Society National Meeting. Dallas, Texas, March 16, 2014. Oral presentation.
83. **Synthesis of Alginate/Chitosan Fibers For Biomedical Applications**, E. Culbertson\*, B. Sibaja\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, Fall 2013, REU program, Auburn University, Alabama, July 26, 2013. Poster presentation.
84. **Interpenetrating Polymer Networks from Biomaterials**, Taylor Trippe\*, B. Sibaja\*, R. Ballester\*, M.L. Auad, Fall 2013, REU program, Auburn University, Alabama, July 26, 2013. Poster presentation.

- 85. Alginate/chitosan Fibers with Potential Biomedical Applications**, B. Sibaja, E. Culbertson\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, NSF-PASI, Polymers and Composite Materials from Renewable Resources and Biorefinery: from Chemistry to Applications”, San Jose, Costa Rica, August 5-16, 2013. Oral presentation.
- 86. Preparation of Alginate-Chitosan Fibers for Biomedical Applications**, M.L. Auad, B. Sibaja\*, E. Culbertson\*, L. De La Fuente, M. Esquivel Alfaro. 2014. XIV SLAP/XII CIP meeting, Porto de Galinhas, PE, Brazil, October 12-16, 2014. Poster presentation.
- 87. Synthesis of Interpenetrating Polymer Networks Using Oil-Based Polyols**, B. Sibaja\*, Taylor Trippe\*, R. Ballesteros\*, M.L. Auad, NanoBio Summit, Montgomery, Alabama, October 18, 2013. Poster presentation.
- 88. Preparation of Alginate/Chitosan Fibers For Biomedical Applications**, B. Sibaja\*, E. Culbertson\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, Fall 2013 Graduate Engineering Research Showcase. Auburn University, Alabama, October 24, 2013. Poster Presentation. (Also listed under Students Awards)
- 89. Remote controlled Shape Memory Polymers**, M.L. Auad, UTIB THE 6TH International R&D BROKERAGE Event, Bursa, Turkey, March 4, 2014. Poster Presentation.
- 90. Chitosan and Alginate Fibers for Textile and Medical Applications**, M.L. Auad, UTIB THE 6TH International R&D BROKERAGE Event, Bursa, Turkey, March 4, 2014. Poster Presentation.
- 91. Novel Antibacterial Polyurethanes Polymers**, M.L. Auad, L. De la Fuente, Fatma Selcen Kilinc, Roy M. Broughton, UTIB THE 6TH International R&D BROKERAGE Event, Bursa, Turkey, March 4, 2014. Poster Presentation.
- 92. Triglycerides and Phenolic Compounds as Precursors of Bio-Based Thermosetting Epoxy Resins**, B. Sibaja\*, M.L. Auad, Fall 2014 Graduate Engineering Research Showcase. Auburn University, Alabama, October 23, 2014. Poster Presentation. (Also listed under Students Awards)
- 93. Sequential Graft-Interpenetrating Polymer Networks of Polyurethane and Acrylic/Vinyl Ester Based Copolymers**, R. Ballesteros\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, October 2014 Graduate Scholars Forum, Auburn, Alabama. Poster Presentation.
- 94. Triglycerides and Phenolic Compounds as Precursors of Bio-Based Thermosetting Epoxy Resins**, B. Sibaja\*, M.L. Auad, Society of Hispanic Professional Engineers Conference. Detroit, Michigan, November 2014. Oral Presentation. (Also listed under Students Awards)
- 95. Interpenetrating Polymer Networks**, R. Ballesteros\*, M.L. Auad, Society of Hispanic Professional Engineers Conference. Indianapolis, Indiana, October 31, 2013. Oral Presentation. (Also listed under Students Awards)
- 96. Remote Photothermal Activation of Polyurethane/Gold Shape Memory Nanocomposites**, C. J. Ward\*, M.L. Auad, E. W. Davis, Graduate Scholars Forum, Auburn University, AL, 26-28 February 2013. Oral Presentation.
- 97. Synthesis and Characterization of High Performance, Transparent Interpenetrating Polymer Networks with Polyurethane and Poly(methyl methacrylate) with Different Polyurethane Network Morphologies**, S.A. Bird\*, M.L. Auad, Graduate Scholars Forum, Auburn University, AL, 26 February 2013. Oral presentation.

- 98. Development of Novel Graft-IPNs**, R. Ballestero\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, American Chemical Society National Meeting, New Orleans, LA, April 11, 2013. Poster Presentation.
- 99. Novel Bio-Based Composite Materials**, B. Sibaja\*, Jessica Sargent\* and M.L. Auad, American Chemical Society National Meeting. New Orleans, Louisiana, April 11, 2013. Oral presentation.
- 100. Synthesis and Characterization of Liquefied Switchgrass-Based Epoxy Resin**, N. Wei, B.K. Via, M.L. Auad, ACS, Volume: 245 Meeting Abstract: 386-POLY, New Orleans, Louisiana, April 11, 2013. Oral presentation.
- 101. Remote Photothermal Activation of Shape Memory Polymers: Polyurethane - Gold Nanocomposites**, C.J. Ward\*, R. Tronndorf\*, A.S. Eustes\*, M.L. Auad, E. W. Davis. Auburn University Research Week, Auburn University, AL, 1-5 April 2013. Oral Presentation.
- 102. Remote Photothermal Activation of Shape Memory Polymers: Polyurethane - Gold Nanocomposites**, C.J. Ward\*, R. Tronndorf\*, A. S. Eustes\*, M.L. Auad, E. W. Davis. 245<sup>th</sup> ACS National Meeting, New Orleans, LA, 7-11 April 2013. Oral Presentation.
- 103. Novel Bio-Based Composite Materials from Renewable Sources**, B. Sibaja\* and M.L. Auad, Science & Technology Open House. Montgomery, Alabama, April 15, 2013. Poster presentation.
- 104. Remote Photothermal Activation of Polyurethane/Gold Shape Memory Nanocomposites**, C.J. Ward\*, R. Tronndorf\*, A. S. Eustes\*, M.L. Auad, E. W. Davis. Tuskegee Showcase and National EPSCoR Meeting, Montgomery, AL, 5-6 April 2013. Poster Presentation.
- 105. Remote Photothermal Activation of Shape Memory Polymers: Polyurethane - Gold Nanocomposites**, C.J. Ward\*, R. Tronndorf\*, A. S. Eustes\*, M.L. Auad, E. W. Davis. Auburn University Research Week, Auburn University, AL, 1-5 April 2013. Oral Presentation.
- 106. Preparation of Alginate/Chitosan Fibers For Biomedical Applications**, E. Culbertson\*, B. Sibaja\*, A. Aguilar\*, J. Parker, L. de la Fuente and M.L. Auad, REU program, Auburn University, Alabama, July 26, 2013. Poster presentation.
- 107. Interpenetrating Polymer Networks from Biomaterials**, T. Trippe\*, B. Sibaja\*, R. Ballestero\*, M.L. Auad, Fall 2013, REU Program, Auburn University, Alabama, July 26, 2013. Poster presentation.
- 108. Dynamic Fracture And Impact Energy Absorption Characteristics Of Transparent Interpenetrating PU-PMMA Polymer Networks**, K.C. Jajam, H.V. Tippur, S.A. Bird\*, M.L. Auad, paper # 208, 2013 SEM Annual Conference, June 2013, Lombard, IL. Oral presentation.
- 109. Remote Photothermal Activation of Polyurethane/Gold Shape Memory Nanocomposites**, C.J. Ward\*, R. Tronndorf\*, A.S. Eustes\*, M.L. Auad, E. W. Davis. Alabama Composites Conference, University of Alabama at Birmingham, Alabama, 18-20 June 2013. Poster Presentation.
- 110. Fracture and Impact Energy Absorption Characteristics of PMMA-PU Transparent Interpenetrating Polymer Networks**, K. C. Jajam, H. V. Tippur, S. A. Bird\*, M. L. Auad, Proceedings of the 50<sup>th</sup> SES Annual Technical Meeting and ASME-AMD Summer Meeting, Providence, RI, July 2013. Oral presentation.

- 111. Alginate/Chitosan Fibers with Potential Biomedical Applications**, B. Sibaja\*, E. Culbertson\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, PASI workshop: Polymers and Composite Materials from Renewable Resources and Biorefinery: from Chemistry to Applications, San Jose, Costa Rica, August 5-16, 2013. Poster presentation.
- 112. Synthesis of Interpenetrating Polymer Networks Using Oil-Based Polyols**, B. Sibaja\*, T. Trippe\*, R. Ballesteros\*, M.L. Auad, NanoBio Summit, Montgomery, Alabama, October 18, 2013. Poster presentation.
- 113. Sequential Graft-IPNs of Polyurethane and Vinyl Ester**, R. Ballesteros\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, NanoBio Summit, Montgomery, Alabama, October 18, 2013. Poster presentation.
- 114. Preparation of Alginate/Chitosan Fibers For Biomedical Applications**, B. Sibaja\*, E. Culbertson\*, A. Aguilar\*, J. Parker, L. de la Fuente, M.L. Auad, Fall 2013 Graduate Engineering Research Showcase. Auburn University, Alabama, October 24, 2013. Poster presentation.
- 115. Sequential Graft-Interpenetrating Polymer Networks Of Polyurethane And Acrylic/Vinyl Ester Based Copolymers**, R. Ballesteros\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, Fall 2013 Graduate Engineering Research Showcase. Auburn University, Alabama, October 24, 2013. Poster Presentation.
- 116. Development of Graft-Interpenetrating Polymer Networks using BisGMA/Tri-EDMA Copolymers and Polyurethane**, R. Ballesteros\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, Graduate Scholars Forum, Auburn, Alabama, October 24, 2013. Poster Presentation.
- 117. Interpenetrating Polymer Networks from Biomaterials**, B. Sibaja\*, T. Trippe\*, R. Ballesteros\*, M.L. Auad, Society of Hispanic Professional Engineering Conference. Indianapolis, Indiana, October 31, 2013. Oral Presentation. (Also listed under Students Awards)
- 118. Development of Novel Graft-IPNs**, R. Ballesteros\*, B. Meenakshi Sundaram, H. Tippur, M.L. Auad, Society of Hispanic Professional Engineers Conference. Indianapolis, Indiana, October 31, 2013.
- 119. Antibacterial QUAT Based Polyurethane Fibers Produced by Electro-spinning**, B. Demir\*, L. de la Fuente, R. Broughton, M.L. Auad, American Chemical Society, San Diego, April 17-22, 2012. Oral Presentation.
- 120. Molecular Interpenetrating Polymer Composites using Acrylate-based Polymers and Polyurethane**, S. A Bird\*, K. C. Jajam, M.L. Auad, H.V. Tippur. Graduate Student Research Showcase, Auburn University, AL, September 13, 2012. Poster Presentation.
- 121. Development of Transparent and High Performance Interpenetrating Polymer Networks**, S.A. Bird\*, M.L. Auad, Graduate Scholars Forum, Auburn University, AL, March 1, 2011. Oral Presentation.
- 122. Novel Polymeric Materials from Vegetable Sources**, B. Sibaja\*, M.L. Auad, Polymer and Fiber Engineering Department Poster Session. Auburn University, March 12, 2012. Poster Presentation.
- 123. Novel Polymeric Materials from Renewable Resources**, B. Sibaja\*, M.L. Auad, Biofuels workshop. Auburn University, June 15, 2012. Poster Presentation.

- 124. Inductive Heating of Gold Nanorods to Stimulate a Shape-Memory Effect in Polymers.** A. Eustes\*, C. J. Ward\*, M.L. Auad, E. Davis. NSF Research Experience for Undergraduates Program In Micro/Nano-Structured Materials, Therapeutics, & Devices, Auburn University AL, 26 July 2012. Poster Presentation.
- 125. Growth and Photothermal Heating of Gold Nanorods to Induce Shape Memory Behavior by Near-Infrared Irradiation.** C.J. Ward\*, A.S. Eustes\*, M.L. Auad, E.W. Davis. Graduate Engineering Research Showcase, Auburn University, AL, 13 September 2012. Poster Presentation.
- 126. Remote Photothermal Activation of Polyurethane/Gold Shape Memory Nanocomposites,** C.J. Ward\*, R. Tronndorf\*, A.S. Eustes\*, M.L. Auad, E.W. Davis. Tuskegee Showcase and National EPSCoR Meeting, Montgomery, AL, 5-6 April 2013. Poster Presentation.
- 127. Optimization of Pine Derived Pyrolysis Oil to Epoxy Ratio in Bio-Based Epoxy Resins.** T.J. Robinson, B.K. Via, M.L. Auad, S. Adhikari, Forest Products Society 66th International Convention, Washington, D.C. 2012, Oral Presentation.
- 128. Stoichiometric Determination of Chemical Components in Pyrolysis Oil-Epoxy Resin Systems.** T.J. Robinson, B.K. Via, M.L. Auad, S. Adhikari, Lignocellulosic Biofuels Conference, Auburn, Alabama. 2012. Poster Presentation.
- 129. Characterization of Phenol Formaldehyde Resin and Resin-MCC Composites,** E. Atta-Obeng, B.K. Via, M.L. Auad, O. Fasina, 2011. 21st Annual Graduate Scholars Forum, Auburn, Alabama. Poster Presentation.
- 130. Thermal and Mechanical Properties of Microcrystalline Cellulose Reinforced PF Resin,** E. Atta-Obeng, B.K. Via, M.L. Auad, O. Fasina, Alabama Composites Conference, University of Alabama at Birmingham (UAB), Birmingham, Alabama, 2010. Poster Presentation.
- 131. Thermal and Mechanical Properties Of Cellulose Nanocrystals Reinforced Phenol Formaldehyde Polymer Matrix,** E. Atta-Obeng, B.K. Via, M.L. Auad, M. Tu, O. Fasina. Forest Products Society 65<sup>th</sup> International Convention, 2012, Madison, Wisconsin. Poster Presentation.
- 132. Development and Characterization of a PMMA/PU Transparent Interpenetrating Polymer Networks (t-IPNs),** K. Jaja, H. Tippur, M.L. Auad, S. Bird\*, XII International Congress & Exposition on Experimental and Applied Mechanics, June 13-15, 2011, Mohegan Sun, Uncasville, Connecticut, USA. Oral Presentation.
- 133. Development a Transparent Interpenetrating Polymer Networks (t-IPNs),** K. Jajam, H. Tippur, M.L. Auad, S. Bird\*, ASME International Mechanical Engineering Congress and Exposition, November 11-17, 2011, Denver, Colorado. Oral Presentation.
- 134. Development of Transparent and High Performance Interpenetrating Polymer Networks,** S. Bird\*, M.L. Auad, Graduate Student Forum, Auburn University, March 1, 2011. Oral Presentation.
- 135. Interactions between Generic Polysaccharides: Chitosan and Alginate,** R. Boy\*, M.L. Auad, Graduate Student Forum, Auburn University, March 1, 2011. Poster Presentation.
- 136. Characterization of Phenol Formaldehyde Resin and Resin,** E. Atta-Obeng, B.K. Via, M.L. Auad, O. Fasina, MCC composites. 21<sup>st</sup> Annual Graduate Scholars Forum, Auburn, Alabama, 2011. Oral Presentation.

- 137. Thermal and Mechanical Properties of Cellulose Nanocrystals Reinforced Phenol Formaldehyde Polymer Matrix**, E. Atta-Obeng, B.K. Via, M.L. Auad, M. Tu, and O. Fasina, Forest Products Society 64<sup>th</sup> International Convention, Madison, Wisconsin, 2011. Oral Presentation.
- 138. Novel Polysaccharide Polymers as Fibers and Films**, R. Boy\*, M.L. Auad, International Fiber Society, May 12-14, Bursa, Turkey, 2010. Poster Presentation
- 139. Carbon Nanotube/Epoxy Nanocomposites**, C. Uzunpinar\*, M.L. Auad, M. Mosiewicki\*, Roberto J. J. Williams, International Fiber Society, May 12-14 Bursa, Turkey, 2010. Oral Presentation.
- 140. Antibacterial Waterborne Polyurethanes**, B. Demir\*, R. Broughton, L. de la Fuente, J. Parker, M.L. Auad, International Fiber Society, May 12-14 Bursa, Turkey, 2010. Poster Presentation.
- 141. Damping Capacity in Carbon Nanotubes-Epoxy Elastomers**, M.L. Auad, C. Uzunpinar\*, Y. Gowayed, R.J.J. Williams, M. A. Mosiewicki\*, 237<sup>th</sup> ACS National Meeting, Salt Lake City, UT, United States, March 22-26, 2009. Poster Presentation.
- 142. Segmented Shape Memory Polyurethanes**, T. Richardson\*, M.L. Auad, M.A. Mosiewicki\*, M.I. Aranguren, N.E. Marcovich, Abstracts of Papers, 237<sup>th</sup> ACS National Meeting, Salt Lake City, UT, United States, March 22-26, 2009. Oral Presentation.
- 143. Study of the Partitioning Effect of Monomers at the Nanofiber-Epoxy Interphase Region**, M.L. Auad, C. Uzunpinar\*, R.J.J. Williams, M.A. Mosiewicki\*, Abstracts of Papers, 237<sup>th</sup> ACS National Meeting, Salt Lake City, UT, United States, March 22-26, 2009. Oral Presentation.
- 144. Waterborne Polyurethanes**, M.L. Auad, B. Demir\*, R.M. Broughton, Abstracts of Papers, 237<sup>th</sup> ACS National Meeting, Salt Lake City, UT, United States, March 22-26, 2009. Oral Presentation.
- 145. Smart Polyurethanes Containing Polyaniline-Cellulose Nanocrystals**, M.L. Auad, N.E. Marcovich, T. Richardson\*, W.J. Orts, Eliton S. Medeiros, L.H.C. Mattoso, M.A. Mosiewicki\*, M. I. Aranguren, Abstracts of Papers, 237<sup>th</sup> ACS National Meeting, Salt Lake City, UT, United States, March 22-26, 2009. Oral Presentation.
- 146. Cellulose Reinforced Polyurethane: Fibers and Films**, M.A. Mosiewicki\*, T. Richardson\*, N.E. Marcovich, M.I. Aranguren, M.L. Auad, Alabama EPSCOR, Montgomery, AL, July 22-24, 2008. Poster Presentation.
- 147. Nanocellulose Reinforced Polyurethane: Fibers and Films**, M.A. Mosiewicki\*, M.L. Auad, T. Richardson\*, M.I. Aranguren, N.E. Marcovich, Abstracts of Papers, 235<sup>th</sup> ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008. Oral Presentation.
- 148. Shape Memory Polyurethanes Reinforced with Electrically Conductive Cellulose Nanocrystals**, M.L. Auad, M. A. Mosiewicki\*, T. Richardson\*, L. Mattoso, W.J. Orts, N. E. Marcovich, M.I. Aranguren, Abstracts of Papers, 235<sup>th</sup> ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008. Oral Presentation.
- 149. The Synthesis and Characterization of a Single Component Thermally Remendable Polymer System**, E. B. Murphy, E. Bolanos, C. Schaffner-Hamann, F. Wudl, S. R. Nutt, M. L. Auad, Polymer Preprints, American Chemical Society, Division of Polymer Chemistry, 49, 1, 976-977, 2008. Oral Presentation.



- 150. Cellulose Nanocrystals as Reinforcement for Shape Memory Polyurethanes**, M.L. Auad, N.E. Marcovich, M.I. Aranguren, S.R. Nutt, V. Contos\*, ACS, March 23 - 29, Chicago, IL, USA, 2007. Oral Presentation.
- 151. Temperature Induced Shape Memory behavior of Nanocellulose Composites**, M.L. Auad, M.A. Mosiewicki\*, T. Ricardson\*, V. Contos\*, S. Nutt, M.I. Aranguren, N.E. Marcovich, 9th International Conference of Wood & Bio-fiber Plastic Composites, May 21-23, 2007, Madison, WI. Oral Presentation.
- 152. Nano Cellulose as Reinforcement for Segmented Polyurethanes**, V.S. Contos, M.L. Auad, S. Nutt, SAMPE, Long Beach, CA, June 2006 April 30-May 4, 2006. Oral Presentation.
- 153. Hybrid Composite Foam**, A. Desai, M.L. Auad, H. Shen, and S. Nutt, SAMPE, Long Beach, CA, April 30-May 4, 2006. Oral Presentation.
- 154. Shape Memory Polyurethane Reinforced with Nano Cellulose Fibers**, N. E. Marcovich, V. S. Contos, S. Nutt, M.I. Aranguren, M.L. Auad, Macro 2006, Rio de Janeiro Brazil, July 16-21, 2006. Oral Presentation.
- 155. Improving Flexural Strength of Stiff Epoxy/Carbon Nanotube Nanocomposites through Optimized Surface Functionalization of MWCNT Reinforcement: Compatibility and Reactivity at the Interface**, Wei Chen, M.L. Auad, R.J.J. Williams, Steve R. Nutt, Gordon Conference, Ventura, CA January 15-19, 2006. Oral Presentation.
- 156. Composites from Polyurethane and Cellulose Nano/Microcrystals**, M.L. Auad, S.R. Nutt, N.E. Marcovich, M.I. Aranguren, Gordon Conference, Ventura, CA January 15-19, 2006. Poster Presentation.
- 157. Segmented Polyurethane Reinforced with Nano Sized Cellulose Fibers**, M.L. Auad, V. S. Contos, S.R. Nutt, N.E. Marcovich, M.I. Aranguren, Gordon Conference, Ventura, CA, January 15-19, 2006. Poster Presentation.
- 158. Nano/Micro Composites from Polyurethanes and Cellulose**, M.L. Auad, N.E. Bellesi, M.I. Aranguren, N.E. Marcovich, American Chemical Society, ACS, March 14-17, 2005, San Diego, CA, USA. Oral Presentation.
- 159. Clay-Reinforced Epoxy-Phenolic Nanocomposites**, M.L. Auad, S. Nutt, M.P. Frontini, Materials Research Society, MRS, April 12-16, 2004, San Francisco, CA, USA. Oral Presentation.
- 160. Fire-Resistant High-Performance Epoxy-Phenolic Foam**, M.L. Auad, L. Zhao, S. Nutt, U. Sorathia, SAMPE 2004, March 16-20, 2004 Long Beach, CA, USA. Oral Presentation.
- 161. Reinforced Epoxy-Phenolic Nanocomposites**, M.L. Auad, S. Nutt, M.P. Frontini, Gordon Conference: composites, January 4-9, 2004 Ventura, CA, USA. Poster Presentation.
- 162. Shear-Induced Alignment of Smectic Side-Group Liquid Crystalline Polymers**, M.L. Auad, J. Kornfield, M.D. Kempe, S. Rendon, W. Burghardt, March 3-6, 2003, Annual Meeting American Physical Society, Huston, Texas, USA. Oral Presentation.
- 163. Shear-induced Alignment of Smectic side-chain liquid crystalline polymers**, M.L. Auad, J. Kornfield, M.D. Kempe, S. Rendon, W. Burghardt, October 21-25, 2002, 74 Annual Meeting SOR, Minneapolis, Minnesota, USA. Oral Presentation.

- 164. Block Copolymer Self-assembly of Nematic Gels**, M.L. Auad, J. Kornfield, M.D. Kempe, S. Rendon, , October 21-25, 2002, 74 Annual Meeting SOR, Minneapolis, Minnesota, USA. Oral Presentation.
- 165. Shear Induced alignment of Smectic Side Chain Liquid Crystalline Polymers**, M.L. Auad, J.A. Kornfield, M.D. Kempe, S. Rendon, W. Burghardt, August, 18-22, 2002, AIChE, Boston, MA, USA. Oral Presentation.
- 166. Main-Chain LCPs: Molecular Understanding of the Rheology and Orientation of Thermotropes in Channel flow**, M.L. Auad, J. Kornfield, M.D. Kempe, S. Rendon, W. Burghardt, January 10-11, 2002, Final Meeting of LC MURI, CALTECH, Pasadena, USA. Poster Presentation.
- 167. Solution and Gels of SGLCPs**, J.A. Kornfield, M.D. Kempe, M.L. Auad, Meeting of LC MURI, CALTECH, Pasadena, USA, January 10-11, 2002. Poster Presentation.
- 168. Effect of Mesophase order on the Dynamics of SGLCPs**, J.A. Kornfield, M.D. Kempe, M.L. Auad January 10-11, 2002, Final Meeting of LC MURI, CALTECH, Pasadena, USA. Oral Presentation.
- 169. Quantifying Molecular Orientation of Thermotropic LCPs in Simple and Complex Flows**, M.L. Auad, J.A. Kornfield, E. Brown, W. Burghardt, Final Meeting of LC MURI, CALTECH, Pasadena, USA, January 10-11, 2002,. Oral Presentation.
- 170. Measurement of a Tumbling Parameter less than Negative One in a Calamitic Liquid Crystal Solution**, J.A. Kornfield, M.D. Kempe, M.L. Auad, Annual Meeting of the Material Research Society, Boston, USA, November 26-30, 2001,. Oral Presentation.
- 171. Molecular Weight Dependence of the Tumbling Parameter for Nematic Solutions of SGLCPs**, M.D. Kempe, M.L. Auad, J.A. Kornfield, 73<sup>rd</sup> Annual Meeting SOR, Bethesda, Maryland, USA, October 21-25, 2001,. Oral Presentation.
- 172. Modification of Vinyl Ester Resins with PMMA-Powder vs. Particle**, M. A Barcia Vico, M.L. Auad, M.I. Aranguren, J. Borrajo, VII Simposio Latinoamericano de Polímeros (SLAP'00), La Havana, Cuba, November, 24-27 of 2000. Oral Presentation.
- 173. Quasibinary and Quasiternary Styrene, Dimethacrylate Resin, and CTBN or VTBN Liquid Rubber Systems**, M.L. Auad, M.I. Aranguren, J. Borrajo, Simposio Argentino de Polímeros, SAP'99. Los Cocos, Córdoba, November, 21-24, 1999. Oral Presentation.
- 174. Mechanical Properties of Modified Vinyl Ester Resins**, M. Proia, M.L. Auad, J. Borrajo, M.I. Aranguren, Simposio Argentino de Polímeros, SAP'99. Los Cocos, Córdoba, November, 21-24, 1999. Oral Presentation.
- 175. A Simple Model for the Kinetics of Copolymerization of DVER-S and UP-S Systems**, M.L. Auad, M.I. Aranguren, J. Borrajo, VI Simposio Latinoamericano de Polímeros (SLAP'98), IV Congreso Iberoamericano de Polímeros (CIP'98) y IV Simposio Chileno de Química y Físico Química de Polímeros (CHIPOL'98), Viña del Mar, Chile, October 25-28, 1998. Oral Presentation.
- 176. Toughening of Vinyl-Ester Resins**, M.L. Auad, M.I. Aranguren, P. Frontini, J. Borrajo, Simposio Argentino de Polímeros, SAP'97. Sierra de la Ventana, November, 3-5, 1997. Oral Presentation.
- 177. Curing Kinetics of Divinyl-Ester Resins with Styrene**, M.L. Auad, M.I. Aranguren, G. Elicabe, J.V. Borrajo, Simposio Latino Americano de Polímeros (SLAP'96), Mar del Plata, Argentina, December, 2-5, 1996. Oral Presentation.

**178. Vinyl Ester-Styrene Copolymers**, M.L. Auad, M.I. Aranguren, J. Borrajo, Argentinian Symposia of Polymer, SAP'95. Huerta Grande, Córdoba, November 22-24, 1995. Oral Presentation.

## **SERVICE**

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### **Service to Professional Societies State and Federal Agencies**

1. Evaluator for the Society of Hispanic Professional Engineers (SHPE)
2. Reviewer for conferences including: Society of Plastic Engineering (SPE)
3. Member of the Scientific Committee, Latin-American Symposium of Polymers (SLAP) and Ibero-American Conference of Polymers (IACP)
4. Panel Evaluator for Department of Defense (DoD) - SMART Scholarship Evaluator, 2013-present
5. Evaluator for the CDC-NIOSH-DART. Alice Hamilton Award for Excellence in Occupational Safety and Health, February 2015
6. NSF on-site evaluator for MRSEC program, 2015
7. Panel evaluator for several NSF programs: PIRE, STTR and SBIR, Materials Processing and Manufacturing, etc
8. Panel Evaluator for the Petroleum Research Fund, July 2015
9. Panel Evaluator for the United Nations University, Biotechnology Program for Latin America and the Caribbean (BIOLAC), 2015
10. Evaluator for the Gorgas Scholarship Competition, 2014, 2015
11. Evaluator for the US Civilian Research and Development Foundation (CRDF) 2012,
12. Evaluator for the Fulbright Scholar Program, 2014, 2013
13. Panel reviewer for the Department of Defense (DoD), Engineering Division, Materials Processing & Manufacturing program, Washington, DC, 2007

### **Scientific Society Affiliations**

1. American Chemical Society (ACS), member of the Polymeric Materials: Science and Engineering Division and the Cellulose and Renewable Materials division
2. American Composites Manufacturers Association (ACMA)
3. Society of Plastic Engineers (SPE)
4. American Society for Engineering Education (ASEE)
5. Society of Hispanic Professional Engineers (SHPE)
6. Phi Beta Delta Honor Society for International Scholars
7. Latin-American Nanotechnology Society

### **Editorial Duties**

Editorial board member of the Journal of Plastic Film & Sheeting 2011-present.  
<https://us.sagepub.com/en-us/nam/journal/journal-plastic-film-sheeting#editorial-board>

## **Ad hoc Reviewer**

Over 60 manuscripts from the following journals have been reviewed during my appointment at Auburn University: Polymer, Macromolecules, Macromolecular Rapid Communication, Journal of Physical Chemistry, Journal of Solid State Chemistry, Polymer International, Journal of Applied Polymer Science, Journal of Engineered Fibers and Fabrics, Biomacromolecules, Bioresources, Composites Part A, Applied Science and Manufacturing, Macromolecular Materials and Engineering, Materials Science & Engineering, Journal of Polymer Science B, Polymer Physics.

## **Symposia or Conferences Organized**

1. Organized a Session during the American Chemical Society meeting, San Diego, California, Session Title: **Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**, Organizers: M.L. Auad, J. Campos Teran, O. Rojas, 2016 – present.
2. Organized a Session during the American Chemical Society meeting, Denver, Colorado, Session Title: **Renewable Resources for Materials and Energy: Recent Research and Developments in Ibero-America**, Organizers: M.L. Auad, O. Rojas, J. Campos Teran, 2015.
3. Organized a Session during the American Chemical Society meeting, Dallas Texas, Session Title: **Renewable Resources for Materials and Energy Recent Research and Developments in Latin-America**, Organizers: M.L. Auad, O. Rojas, J. Campos Teran, 2014.
4. Organized a Session during the Society of Hispanic Professional Engineers (SHPE) meeting. Session Title: **Polymer and Composites from Natural Sources**, Organizers: M.L. Auad and O. Rojas, Oct 30 – Nov 2, 2013.

## **University Service**

-Member of the Pre-Professional Advisory Committee (PPAC)	2017-present
-Annual Auburn University Campus-wide Symposiums evaluator	2008-present
-Judge for the graduate research showcase.	2006-present
-Member of International Students Commission, AU	2014-2015
-Chair of the Persons with Disabilities Commission, AU	2013- 2016
-Member of the AU International Teaching Academy	2013- present
-Chair & Co-Chair of the Multicultural Diversity Commission, AU	2010- 2012
-Member of Auburn Prof. for Exchange of Scientific Interest	2010-2011
-Member of the Multicultural Diversity Commission, AU	2008-2010
-Auburn University, Office of Vice President of Research, Faculty Mentoring Committee.	2008
-Frank Vandegrift Award Selection Committee, from the Auburn University Cooperative Education Program.	2007

## College of Engineering Service

- Member Tenure and Promotion Committee, CHEN 2018-present representative
- Member of the Interdisciplinary Faculty Research Colloquium, 2014-present  
College of Engineering
- Member of different Search committee 2008-present
- Breedon & Reed Professorship Selection Committee, COE 2010
- Member Presidential Scholars Day Committee 2009

## Department Service (Department of Chemical Engineering 2015-present and Department of Polymer and Fiber Engineering 2006-2015)

- Director of the Center for Polymer and Advanced Composites 10/2015-present
- Interim Chair Department of Polymer and Fiber Engineering 8/2013-10/2015
- Seminar Coordinator, Department of PFEN 2008-2015
- Member of the PFEN Graduate Program Admission Committee 2009-present
- Evaluation of Senior Design Projects, Polymer and Fiber 2007-2013  
Engineering Department

## Collaborators

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Mirta Aranguren (U. Mar del Plata, Argentina), J. Vega Baudrit (Nacional U. Costa Rica)  
Lars Berglund (Royal Institute of Tech., Sweden), Wesley R. Burghardt (Northwestern U.), Brian Chin (Auburn U.), Piedad Gañan (U Pontificia Bolivariana, Colombia), Mahesh Hosur (Tuskegee U.), Norma Marcovich (U. Mar del Plata, Argentina), Luiz Mattoso (EMBRAPA –Brazil), Jan Neal (AMOCO Corp.), Orlando Rojas (North Carolina State University), Usman Sorathia (NAVY, Fire Prot. & Sea Survival Branch), Hareesh Tippur (Auburn U.), Brian Via (Auburn U.), Fred Wudl (UCLA), Wei Zhan (Auburn)