VIRGINIA A. DAVIS, Ph.D.
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EDUCATION

2006: Ph.D. Chemical and Biomolecular Engineering, Rice University
1993: M.E. Chemical Engineering, Tulane University
1990: B.S.E. Chemical Engineering, Tulane University

EXPERIENCE

2014 - Date: Alumni Professor, Dept. of Chemical Engineering, Auburn University
2010 – 2014: Sanders Associate Professor, Dept. of Chemical Engineering, Auburn University
2005 - 2010: Assistant Professor, Dept. of Chemical Engineering, Auburn University
2001 - 2005: Graduate Research Assistant, Dept. of Chem. and Bio. Eng., Rice University
1999 - 2001: Global Marketing Manager, Polyesters, Shell Chemical Co. (M&G Polymers)
1994 - 1999: Engineer R&D, Polyethylene Terephthalate Business, Shell Chemical Company
1990 - 1994: Engineer, Assoc. Engineer, Polypropylene Business, Shell Chemical Company

RECENT HONORS AND AWARDS

2015: Auburn University Excellence in Faculty Outreach Award, Invited to attend the National Academies Keck Futures Workshop (NAKFI) and National Academy of Engineering Frontiers of Engineering Education Symposium (NAE FOEE),Texas A&M ADVANCE Speaker Series, Conference of Southern Graduate Schools Award for Increasing Diversity in Graduate Education (with Auburn Department of Chemical Engineering)

2013: Jim Westmoreland Memorial Judges Award South's BEST Robotics Competition, Senior Faculty Alumni Engineering Council Research Award for Excellence

2012: AIChE Nanoscale Science and Engineering Forum Young Investigator Award, Faculty Initiate Phi Kappa Phi Honor Society, Auburn Women of Distinction Faculty Award

2011: Elected AIChE Nanoscale Science and Engineering Forum Secretary/Treasurer, Invited to Attend National Academy of Engineering Frontiers of Engineering (NAE FOE) Symposium, Mark A. Spencer Creative Mentorship Award

2010: Presidential Early Career Award for Scientists and Engineers (PECASE), South Texas Section of AIChE Best Applied Paper Award

2009: Junior Faculty Alumni Engineering Council Research Award for Excellence, National Science Foundation Faculty Early Career Development (CAREER) Award

SELECTED PUBLICATIONS (of 45, Google Scholar: 2900+ citations h-index 22)

1. Passantino, J. M.; Haywood, A. D.; Goswami, J.; Davis, V. A. Effects of Polymer Additives and Dispersion State on the Mechanical Properties of Cellulose Nanocrystal Films. Macromolecular Materials and Engineering 2017, 302, 1600351.

2. Haywood, A. D.; Davis, V. A. Effects of Liquid Crystalline and Shear Alignment on the Optical Properties of Cellulose Nanocrystal Films. Cellulose 2017, 24, 705-716.

3. Ao, G.; Nepal, D.; Davis, V. A. Rheology of Lyotropic Cholesteric Liquid Crystal Forming Single-Wall Carbon Nanotube Dispersions Stabilized by Double-Stranded DNA. Rheologica Acta 2016, 55, 717-725.

4. Xu, T.; Davis, V. A. Liquid Crystalline Phase Behavior of Silica Nanorods in Dimethyl Sulfoxide and Water. Langmuir 2014, 30, 4806-4813.

5. Radhakrishnan, V. K.; Davis, V. A.; Davis, E. W. The Effect of Melt Extrusion Process Parameters on Rotary-Evaporated Poly(Propylene) Nanocomposites. Macromolecular Materials and Engineering 2012, 297, 864-874.

6. Horn, D. W.; Tracy, K.; Easley, C. J.; Davis, V. A. Lysozyme Dispersed Single-Walled Carbon Nanotubes: Interaction and Activity. The Journal of Physical Chemistry C 2012, 116, 10341-10348.

7. Davis, V. A. Liquid Crystalline Assembly of Nanocylinders. Journal of Materials Research 2011, 26, 140 – 153 (invited)

8. Ureña-Benavides, E. E.; Ao, G.; Davis, V. A.; Kitchens, C. Rheology and Phase Behavior of Lyotropic Cellulose Nanocrystal Suspensions. Macromolecules 2011, 44, 8990-8998.

9. Murali, S.; Xu, T.; Marshall, B. D.; Kayatin, M. J.; Pizarro, K.; Radhakrishnan, V. K.; Nepal, D.; Davis, V. A. Lyotropic Liquid Crystalline Self-Assembly in Dispersions of Silver Nanowires and Nanoparticles. Langmuir 2010, 26, 11176-11183.

10. Kayatin, M. J.; Davis, V. A. Viscoelasticity and Shear Stability of Single-Walled Carbon Nanotube/Unsaturated Polyester Resin Dispersions. Macromolecules 2009, 42, 6624-6632.

11. Davis, V. A.; Parra-Vasquez, A. N. G.; Green, M. J.; Rai, P. K.; Behabtu, N.; Prieto, V.; Booker, R. D.; Schmidt, J.; Kesselman, E.; Zhou, W.; Fan, H.; Adams, W. W.; Hauge, R. H.; Fischer, J. E.; Cohen, Y.; Talmon, Y.; Smalley, R. E.; Pasquali, M. True Solutions of Single-Walled Carbon Nanotubes for Assembly into Macroscopic Materials. Nature Nanotechnology 2009, 4, 830-834.

12. Nepal, D.; Balasubramanian, S.; Simonian, A. L.; Davis, V. A. Strong Antimicrobial Coatings: Single-Walled Carbon Nanotubes Armored with Biopolymers. Nano Letters 2008, 8, 1896-1901.

PATENTS

1. W. R. Ashurst, V. A. Davis, C. L. Kitchens, “Processing and Processing of Cellulose Films for MEMS applications.” US Patent 9,353,313, issued May 31, 2016.

2. R. E. Smalley, R. K. Saini, S. Ramesh, R. H. Hauge, V. A. Davis, M. Pasquali, and L. M. Ericson, “Fibers of Aligned Single-Wall Carbon Nanotubes Process for Making the Same.” U.S. Patent 7,125,502 issued October 24, 2006.

3. M. Pasquali, V. A. Davis, I. Stepanek, and A. N. Parra-Vasquez, “Method and Apparatus for Determining the Length of Single-Walled Carbon Nanotubes.” U.S. Patent 6,962,092, issued November 8, 2005.

4. R. E. Smalley, R. H. Hauge, R. Sivarajan, R. K. Saini, V. A. Davis, M. Pasquali, L. M. Ericson, S. Kumar, and S. T. Veedu, “Single-Wall Carbon Nanotube Alewives, Process for Making, and Compositions Thereof.” U.S. Patent 7,288,238, issued October 30, 2007.