**Matthew Weisenberger, PhD,** is Associate Director of the University of Kentucky's Center for Applied Energy Research (CAER) where he leads the Materials Technologies Research Group. He is also Adjunct Professor of Materials Science and Engineering in UK's Department of Chemical and Materials Engineering. Dr. Weisenberger has been at UK's CAER since 2001, and served as Associate Director since 2014.

Since 2012, he has served as a principal investigator on over $10 million in research funding across 30 research projects, with funding from the US Departments of Energy, Defense, Homeland Security, Agriculture, Commerce, The Commonwealth of Kentucky, NSF, and industrial sponsors. Dr. Weisenberger is also active in the Manufacturing USA initiative, involving a multitude of industrial and university members, and serves as the KY Director for DOE's IACMI (Institute for Advanced Composites Manufacturing Innovation), and DOD's AFFOA (Advanced Functional Fabrics of America).

His research interests center about materials for energy and defense applications, and include structure-property-processing relationships in the manufacturing of carbon fiber, thermal management in composite structures, nano-carbons in energy harvesting, polymer coatings, membranes & fibers; and a host of industrial carbons applications. Additional emphasis in his research group leads the utilization of coal combustion by-products, notably for the development of low-energy, high performance cementitious materials

Recent work has centered on the development of low cost carbon fiber manufacturing for automotive applications, and on the conversion of coal to carbon fiber. UK's CAER is globally recognized as a leader in carbon fiber research and development.

Dr. Weisenberger has served on the American Carbon Society's Executive Committee since 2010, and is a leader in the organization of its international conferences and workshops. He received his Bachelor's degree in chemistry from Georgetown College and MS & PhD degrees from the University of Kentucky in Materials Science and Engineering. Dr. Weisenberger has two issued US Patents, three book chapters, and his publications have over 1000 peer citations in the refereed literature.

## Selected Publications


1. Ruben Sarabia-Riquelme, John Craddock, E Ashley Morris, David Eaton, Rodney Andrews, John Anthony, Matthew C Weisenberger, "Simple, low-cost, water-processable n-type thermoelectric composite films from multiwall carbon nanotubes in polyvinylpyrrolidone", Synthetic Metals, Vol. 225, March **2017**, Pages 86-92. https://doi.org/10.1016/j.synthmet.2016.11.014
2. John D. Craddock, Jordan J. Burgess, Sarah E. Edrington, Matthew C. Weisenberger, "Method for direct measurement of in-plane carbon fiber thermal diffusivity using laser flash technique", Journal of Thermal Science and Engineering Applications MARCH **2017**, Vol. 9 / 014502-1 – 014502-3, DOI: 10.1115/1.4034853
3. John D. Craddock, Terry Rantell, James C. Hower, David T. Whitlow, John Wiseman, Matthew C. Weisenberger, "Anode Coke from Coal – A Low Cost Approach", FUEL, **2017**, 229-241, http://dx.doi.org/10.1016/j.fuel.2016.09.045
4. Ruben Sarabia-Riquelme, Gloria Ramos-Fernández, Ignacio Martin-Gullon, Matthew C. Weisenberger, "Synergistic effect of graphene oxide and wet-chemical hydrazine/deionized water solution treatment on the thermoelectric properties of PEDOT: PSS sprayed films", Synthetic Metals, **2016**, 222, 330-337, https://doi.org/10.1016/j.synthmet.2016.11.013

5. Nicolas E. Holubowitch, James Landon, Cameron A Lippert, John D. Craddock, Matthew C. Weisenberger, Kunlei Liu, "Spray-Coated Multiwalled Carbon Nanotube Composite Electrodes for Thermal Energy Scavenging Electrochemical Cells", ACS Applied Materials & Interfaces, **2016**, 8 (34), 22159–22167, DOI: 10.1021/acsami.6b05083
6. Bernhard Dörling, Jason D. Ryan, John D. Craddock, Andrea Sorrentino, Ahmed El Basaty, Andrés Gomez, Miquel Garriga, Eva Pereiro, John E. Anthony, Matthew C. Weisenberger, Alejandro R. Goñi, Christian Müller, and Mariano Campoy-Quiles, "Photoinduced p- to n-type Switching in Thermoelectric Polymer-Carbon Nanotube Composites", Advanced Materials, **2016**, DOI:10.1002/adma.201505521
7. E. Ashley Morris, Matthew C. Weisenberger, Mohamed G. Abdallah, Frederic Vautard, Hippolyte Grappe, Soydan Ozcan, Felix L. Paulauskas, Cliff Eberle, Dave Jackson, Sue J. Mecham, Amit K. Naskar, "High Performance Carbon Fibers from Very High Molecular Weight Polyacrylonitrile Precursors", CARBON 101 (**2016)**, 245 – 252, DOI: 10.1016/j.carbon.2016.01.104
8. E. Ashley Morris, Matthew C. Weisenberger and Gregory Wilson Rice, "Properties of PAN Fibers Solution Spun into a Chilled Coagulation Bath at High Solvent Compositions", Fibers **2015** (3) 4 560 – 574; DOI:10.3390/fib3040560 (Invited Paper)
9. John D. Craddock, Dali Qian, Catherine Lester, John Matthews, J. Patrick W. Mansfield, Richard Foedinger, Matthew C. Weisenberger, "Continuous processing of multi-walled carbon nanotube-studded carbon fiber for enhanced through-thickness thermal diffusivity composites", Journal of Nanoscience and Nanotechnology, Vol. 15, No. 9, pp. 6852 – 6855, Sept (**2015**), DOI: http://dx.doi.org/10.1166/jnn.2015.11620
10. John D. Craddock and Matthew C. Weisenberger "Harvesting of large, substrate-free sheets of vertically-aligned multiwall carbon nanotube arrays", CARBON 81 (**2015**) 839 - 841, DOI: 10.1016/j.carbon.2014.09.039
11. E. Ashley Morris, Matthew C. Weisenberger, Stephanie B. Bradley, Mohamed G. Abdallah, Sue J. Mecham, Priya Pisipati, James E. McGrath, "Synthesis, Spinning, and Properties of Very High Molecular Weight Poly(acrylonitrile-co-methyl acrylate) for High Performance Precursors for Carbon Fiber", POLYMER, **2014**, 55(25), 6471-6482. http://dx.doi.org/10.1016/j.polymer.2014.10.029
12. E. Ashley Morris and Matthew C. Weisenberger, "Solution Spinning of PAN-Based Polymers for Carbon Fiber Precursors", ACS Books Symposium Series, Volume Polymer Precursor-Derived Carbon edited by Amit K. Naskar, Dennis W. Smith, Jr., James E. McGrath, Wesley P. Hoffman, Published to web 14 Oct. **2014**, DOI: 10.1021/bk-2014-1173.ch009, ISBN13: 9780841229662
13. Dali Qian, Rodney Andrews, Matthew C. Weisenberger, Mark S. Meier, "Nitrogen-containing carbon nanotubes and Y junctions by floating catalytic chemical vapor deposition", Nanomaterials and Energy", 1 (3) 168-179, **2012**, DOI: 10.1021/nl0349294
14. H. Varela-Rizo, M.C. Weisenberger, D.R. Bortz, I. Martin-Gullon "Fracture toughness and creep performance of PMMA composites containing micro and nanosized carbon filaments", Composites Science and Technology, 70 (7) 1189-1195, **2010**. https://doi.org/10.1016/j.compscitech.2010.03.005
15. M.C. Weisenberger, I. Martin-Gullon, J.Vera-Agullo, H. Varela-Rizo, C. Merino, R. Andrews, D. Qian, T. Rantell "The Effect of Graphitization Temperature on the Structure of Helical-Ribbon Carbon Nanofibers", CARBON, 47 (9) 2211 – 2218, **2009**. https://doi.org/10.1016/j.carbon.2009.03.070
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17. M.C. Weisenberger, R. Andrews, T. Rantell "Carbon Nanotube Polymer Composites: Recent Developments in Mechanical Properties" Physical Properties of Polymers Handbook 2nd Ed., James E. Mark Editor. Chapter 35. Springer (**2007**) DOI: 10.1007/978-0-387-69002-5, ISBN 978-0-387-69002-5
18. M.C. Weisenberger, R. Andrews "Carbon nanotube polymer composites," Current Opinion in Solid State and Materials Science, 18(1) 31-37, (**2004)**. DOI: 10.1016/j.cossms.2003.10.006

## Patents

1. US Patent 9,533,883 M. Weisenberger, J. Craddock, "Apparatus and method for harvesting carbon nanotube arrays", issued January 3, **2017**
2. U.S. Patent 8,632,879 Weisenberger, M.C. "Lightweight thermal management material for enhancement of through-thickness thermal conductivity" (Univ. of KY IP Disclosure: #1518), Filed 25 April 2008, Published 29 Oct. 2009, Issued 21 Jan. **2014**