

Dale K. Hensley
Controlled Synthesis Engineer
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[Publications](#)



Education:

Fountainhead College of Technology, Knoxville, TN
Formally known as Tennessee Institute of Electronics

Associate Electronic Technology, 1983

Additional Training:

Successful completion of courses resulted in “Certificates of Training” from AVS “The Science and Technology Society,” in Plasma Enhanced Chemical Vapor Deposition (PECVD), Plasma Etching and Reactive Ion Etching (RIE), Basics of Radio Frequency, Surface Preparation for Thin-Film Deposition, Thin Film Deposition by Evaporation, Operation/Maintenance and Leak Detection of Vacuum Systems, Scanning Electron Microscopy and X-ray Microanalysis, and Energy Dispersive X-ray Micro Analysis from EDAX/Ametek.

Professional Experience:

11/05–Present	Controlled Synthesis Engineer, Nanofabrication Research Laboratory Group, Center for Nanophase Materials Sciences (CNMS) Division, Oak Ridge National Laboratory (ORNL)
12/01–11/05	Controlled Synthesis Research Associate, Molecular-Scale Engineering and Nanoscale Technologies group, Condensed Matter Sciences Division, ORNL.
3/91–12/01	Principal Technologist, Surface Modification and Characterization Research Center (SMAC), Solid State Division, ORNL
8/83–3/91	Engineering Technologist, Oak Ridge Electron Linear Accelerator (ORELA), ORNL
4/83 –8/83	Electronic Technician, CBS, Carrollton, GA

Since August 1983, technical support for several research areas and 3 user facilities, ORELA, SMAC and CNMS at ORNL. Was involved in the beginning phase of the CNMS (Center for Nanophase Materials Sciences Division); where the initial focus was being part of the team to bring the Nanofabrication Research Laboratory (NRL) online. Presently supports nanofabrication research with site specific training, Lab Space Management, tool ownership/training/support (Physical Vapor Deposition tools and Scanning Electron Microscopes), synthesis, fabrication, and characterization.

Research Synopsis (2001 – present):

Controlled Synthesis of Vertically Aligned Carbon Nanofibers (VACNF) and Carbon Nanospikes (CNS). Custom built a direct current plasma-enhanced chemical vapor deposition (dc-PECVD) system to grow VACNF and CNS. Participated in several interdisciplinary research teams in the following projects: Neuronal interfaces, Cell mimic, Membrane mimic, DEAL, Intracell, Maximus, TFT arrays, F-extraction, Nanostructured Gene Delivery Arrays and ORNL-6, Technology Innovation Program (TIP) - Rapid, Fieldable Viral Diagnostics, Also participate in CNMS User projects with the synthesis of VACNF's and CNS's.

Characterization of Vertically Aligned Carbon Nanofibers (VACNF), Carbon Nanospikes (CNS) and other materials. Utilization of Scanning Electron Microscopies (SEM) with Energy-dispersive X-ray spectroscopy (EDS) has resulted in publications and awards.

Professional Associations:

1991–2000 Symposium of North Eastern Accelerator Personnel (SNEAP)
2001–2013 AVS Science and Technology of Materials, Interfaces, and Processing
2013 – Present Microscopy Society of America

Honors, Awards and Recognitions:

2015 Master Technician – Top of ORNL’s Technical Support Ladder.
2014 ORNL Supplemental Performance Award for sharing nano science technology to the general and science attentive public effectively through tours and outreach.
2014 Microscopy Society of America (MSA) Microscopy & Microanalysis Micrograph Competition 1st place
2012 ORNL Supplemental Performance Award for contributing to the installation and startup of the Helium Ion Microscope.
2011 ORNL Significant Event Award for important contributions in the installations and start-up of AARA- procured advanced microscopes for Electron Microscopy with Soft-Material Emphasis in the CNMS and provided training to users of these microscopes.
2011 Siemens Foundation Certificate of Recognition as a Mentor for “Teachers as Researchers”. Preparing Science & Technology Leaders for the future in Microanalysis
2009 AVS International Symposium and Exhibition, Micrograph Competition 1st place
2008 ORNL Technical Support Team Award, for successful operation of the Nanofabrication Research Laboratory and the growth of a vibrant user community
1998 ORNL Technical Achievement Award, for developing a novel time-shared, foreline and roughing vacuum system for the Surface Modification and Characterization Research Center that resulted in a greatly reduced environmental impact while achieving an annual cost savings of approximately \$31,000
1993 ORNL Pollution Prevention Award, Large Quantity Generator, Chlorinated Water Minimization

Invention Disclosures:

2015 Electrochemical Catalyst for Conversion of CO₂ to Ethanol.
2013 Nanotextured, Non-Plating Electrode for Low Temperature Electrochemical Nanoparticle Synthesis and Other Particulate Electrochemical Reactions.

Research Gate RG Score = 35.16, Hirsch-index = 24, Over 1600 Citations, Over 100 Co-authored articles and Publications:

J. Zhang; Y. Bai; X. G. Sun; Y. Li; B. Guo; J. Chen; G. M. Veith; D. K. Hensley; M. P. Paranthaman; J. B. Goodenough and S. Dai, “Superior Conductive Solid-like Electrolytes: Nanoconfining Liquids within the Hollow Structures,” *Nano. Lett.*, **15**, 3398 (2015).
C. Ungaro; A. Shah; I. Kravchenko; D. K. Hensley; S. K. Gray and M. C. Gupta, “Optical and Infrared Properties of Glancing Angle-Deposited Nanostructured Tungsten Films,” *Opt. Lett.*, **40** (4), 506 (2015).
D. Saha; T. Moken; J. Chen, D. K. Hensley; K. Delaney; M. A. Hunt; K. Nelson; A. Spurri; L. Benham; R. Brice and M. Azoro, “Micro-Mesoporous Carbons for Controlled Release of Antipyrine and Indomethacin.” *RSC Adv.*, **5** (30), 23699 (2015).
R. Pearce; T. McKnight; K. L. Klein; I. N. Ivanov; D. K. Hensley and H. Meyer III, “Synthesis and Properties of SiN_x Coatings as Stable Fluorescent Markers on Vertically Aligned Carbon Nanofibers,” *AIMS Materials Science* **1**, (2), 87-102 (2014).