

# **ROBERT E. NORRIS, JR.**

## **POSITION**

Senior R&D Staff Member, Carbon and Composites Group  
Materials Science and Technology Division  
Oak Ridge National Laboratory  
Oak Ridge, TN 37831-6053

## **CONTACT INFORMATION**

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## **EDUCATION**

M.S., Clemson University, 1981  
B.S., Clemson University, 1980 - Magna Cum Laude

## **RESEARCH AND PROFESSIONAL EXPERIENCE**

### **Oak Ridge National Laboratory, Oak Ridge, TN**

#### Senior R&D Staff Member (2013-Present)

PI of \$10.8M carbon fiber development CRADA, melt spun polyacrylonitrile precursor project, manufacturing of composites from lignin-based carbon fiber, and responsible for leadership of several other key carbon fiber and composites programs.

#### Group Leader (1990-2013)

Managed Polymer Matrix Composites Group at ORNL. Directed efforts of widely recognized professionals, accomplished technical support, and administrative staff. Responsible for strategic planning, technical activities, management of projects, and development of new projects/programs in this entrepreneurial group. Personal leadership of advanced performing development, alternative tooling for electron beam curing, and carbon fiber and composites projects.

#### Development Associate III (1985-1990)

Project manager/squad leader in composite materials development group. Directed applied development and fabrication projects using state-of-the-art materials.

#### Development Associate II (1983-1985)

Dynamic testing of materials and components under development for the Advanced Gas Centrifuge Program at Oak Ridge Gaseous Diffusion Plant. Responsibilities included test development, test direction, and facilities management.

### **Celanese Corporation, Charlotte, NC**

#### Research and Development Engineer I (1981-1982)

Development of new products, including special fibers for sewing thread, fiberfill, and polyester cover sheets for disposable diapers. Responsibilities required extensive interface with marketing and manufacturing organizations. Directed pilot-plant and plant-scale trials.

## **HONORS, AWARDS, AND ACTIVITIES**

Three times recognized at company "Awards Night" for Group Leadership (2005) and team contributions (1998 and 2012). Chaired 2 Electron Beam Curing of Composites Workshops attended by leading composites researchers and program managers to review and promote research agenda. Invited by Associate Provost to review and assess Composites Center vitality at VPI. SAMPE Symposium Session Chairman, May 2004.

Registered Professional Engineer (Inactive Status) in the State of Tennessee, #18348.

College Awards: Alumni Fellowship Award - unrestricted \$5,000 grant for graduate study (1 of 3 awarded for 1980-1981). Reid-Baskin Scholarship (1978-1979 and 1979-1980) - \$1000 awards. Outstanding Scholastic Achievement Award in Mechanical Engineering (1978 and 1979).

## SELECTED PUBLICATIONS: R. E. NORRIS

- R. E. Norris, “High Volume, Lower Cost Carbon Fiber for High Volume Industries”, keynote at Carbon Fibre -Future Directions Conference, Geelong Australia, February 28-March 4, 2011.
- R. E. Norris, “Fiber Reinforced Polymers in Lightweight Vehicle Structures – Low Cost Carbon Fiber Appears Poised to Become a Major Option”, panel session presentation, Lightweight Materials Summit, Detroit, Michigan, August 10, 2011.
- R. E. Norris, et. al., “Advanced High Speed Programmable Preforming”, SAMPE 2010, May 2010.
- S. T. Jespersen, et. al., “Rapid Processing of Net-Shape Thermoplastic Planar-Random Composite Preforms”, Applied Composite Materials (2009) 16:55–71.
- S. T. Jespersen, et. al., “Consolidation of Net-shape Random Fiber Thermoplastic Composite Preforms”, Polymer Composites, published online March 2009.
- S. T. Jespersen, et. al., “Flow Properties of Tailored Net-Shape Thermoplastic Composite Preforms”, Applied Composite Materials, published online September 2009.
- A.O. Fernandes, et al., “Investigation of the Budd Slurry Process for the Production of Short Random Fiber Preforms”, SAMPE 2004 Symposium and Exhibition, Long Beach, CA, May17-20, 2004.
- R. Foedinger, et al., “Development Of Electron Beam Curable Composite Motor Cases”, SAMPE 2002 Symposium and Exhibition, Long Beach, CA, May12-16, 2002.
- R. E. Norris, "Growing Interest in Electron Beam Curing of Polymer Matrix Composites - An Overview of the Status and Possibilities," RadTech Report, September/October 2000, pgs15-20.
- R. E. Norris, "EB Cure Monitoring, A Brief Overview of the Issues and the Possibilities," Electron Beam Curing of Composites Workshop, Oak Ridge, TN USA, 2000.
- R. E. Norris, et al., "Electron Beam Curing of Composites," SAE/DOE 2000 Future Car Congress, Arlington, VA USA, 4/02/2000-4/06/2000.
- R. E. Norris, "Electron Beam Curing of Composites - An ORNL View of Issues, Activities, and Possibilities," 1999 Defense Manufacturing Conference, Miami, FL USA, 11/29/1999-12/02/1999.
- R. E. Norris, "Government/Industry Interactions in Composite Materials Development through the Oak Ridge National Laboratory," SAMPE-ACCE-DOE Advanced Composites Conference, Detroit, MI USA, SAMPE, USA, Sept. 27-29, 1999.
- C. J. Janke, D. Howell and R. E. Norris, CRADA Final Report for CRADA No. Y1293-0233 Electron Beam Curing of Polymer Matrix Composites, ORNL/M-6115.
- S. Brittig, et. al., (R. E. Norris principle author), "Advanced Surgical Suite for Trauma Casualties (ASSTC): From Concept to Reality," Defense Manufacturing Conference, Palm Springs, CA, Dec.1-4, 1997.
- G. E. Wrenn, B. J. Frame and R. E. Norris, Electron Beam Cured Composite Rotor Rim for Energy Momentum Wheel (EMW) Flywheel System, ORNL/FPO-97/21.
- C. J. Janke, et. al., "Critical Parameters for Electron Beam Curing of Cationic Epoxies and Property Comparison of Electron Beam Cured Cationic Epoxies Versus Thermal Cured Resins and Composites," 42nd International SAMPE Symposium/Exhibition, Anaheim, CA, May 5-8,1997.
- R. E. Norris, and M. D. Schulz, "Selection of Materials to Be Utilized in Fabrication Tooling for Electron-Beam Curing of Composites," 28th Int. SAMPE Technical Conference, Seattle, WA, Nov.4-7, 1996.
- R. E. Norris and M. D. Schulz. "Tooling Material Degradation Via Exposure to Electron Beam Radiation," 28th Int. SAMPE Technical Conference, Seattle, WA, Nov.4-7, 1996.
- R. E. Norris, "In-Situ Consolidation of Thermoplastic Composites," Materials. Technology 1993.
- R. E. Norris, V. W. Campbell, and K. W. Tobin, In-Situ Thermoplastic Consolidation System, ORNL/ATD-76.
- R. E. Norris, “In-Situ Thermoplastic Consolidation System”, Ninth Thermoplastics Composites Review, San Diego, CA, February 11-13, 1992.