

DURING THE 21ST CENTURY, nanomaterials have become more commonly applied in industrial and consumer products. Since nanomaterials (also known as *advanced materials*) are growing more complex in both their applications and manufacture, their environmental health and safety (EHS) aspects are becoming increasingly critical to organizations. Furthermore, as advanced materials are developed, new safety and environmental standards must be crafted so that professionals will be able to act appropriately to ensure worker safety. To prepare safety managers, industrial hygienists, and other related nanomaterial engineering positions, higher education must be in a position to offer curriculums/programs to develop future professionals. There is a need for more scholarly activities in the area of the EHS of nanomaterials.

The three feature articles in this issue of *IEEE Nanotechnology Magazine* address different aspects of nanomaterial EHS and the status of nanotechnology education programs. Dr. Richard J. Matyi, associate professor and coordinator of the mechanical and industrial engineering program at Florida Polytechnic University, and Dr. Robert I. MacCuspie, chief executive officer of MacCuspie Innovations and NanoSafe, open the issue with an article discussing tiered risk assessment approaches for nanomaterial EHS. The importance of understanding the size

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# Promoting Nanotechnology Safety

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and size distribution of a material is predicated on what metrological tools to utilize along with knowing the strengths and weaknesses of those tools.

Dr. Walt Trybula, IEEE Components, Packaging, and Manufacturing Technology Society Distinguished Lecturer and adjunct professor at Texas State University, and Deb Newberry, founder of the National Science Foundation Nano-Link Center, analyze the current status of nanotechnology safety integrated in postsecondary education. In addition, an overview of the importance of, and the need for, training in the EHS of nanomaterials and the challenges of addressing the rapid development of new advanced materials provide insight for future developments.

Joseph R. Wright, a doctoral student in the Department of Materials Science and Engineering, Drexel University, discusses Pennsylvania State University's program for nanotechnology education, which partners with the Commonwealth of Pennsylvania's

two-year institutions to provide differently focused nanotechnology programs. The model produces graduates who can quickly and successfully enter nanomanufacturing-type jobs in the United States.

The authors' articles share their perspective on addressing the safety and hazards of having nanomaterials in the workplace and postsecondary institutions, which requires being proactive to meet the challenge of building a competent professional workforce in nanotechnology.

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