



## Future Advancements – Where will the Workforce Come from to Meet Future Nanotechnology R&D Needs?

Nancy Healy\*

Georgia Institute of Technology, USA



### Abstract

Nanoscale science and engineering has advanced over the last decade at a very rapid pace. NanoCongress 2020 is addressing future advances in nanotechnology over a wide range of nano topics yet one “future area” is minimally addressed at this conference, and missing from most other nanofocused conferences e.g., - the future workforce needed to keep pace with this field’s growth. It has been estimated that by 2020 nanotechnology will need 2 million workers worldwide with another five million in supporting roles. Rocco and Bainbridge (2016) also ask: “What are the most pressing research and education issues? How can we develop a transforming national strategy to enhance individual capabilities and overall societal outcomes?” This presentation will discuss strategies that have been successful in developing a workforce pipeline from K through gray. In the US, the National Science Foundation has funded numerous nanotechnology education programs focusing on developing a nanoenabled workforce and an educated public that supports the safe development of nanotechnologies. This presentation will present examples of successful programs such as our Research Experience for Undergraduates. This program’s participants are part of a longitudinal study spanning back to 1997 and encompassing ~1500 students. Over half of these interns are in nanotechnology related fields and 90% in STEM. Some of these students have participated in a second year international program to develop globally aware researchers. To continue to be successful in creating and maintaining a nano-workforce it will be necessary to have joint efforts of academia, industry, and government.

issues. From 1977 to 1994, she held academic positions at the University of South Carolina. She has a B.S. in Zoology from the University of Rhode Island and M.S. and Ph.D. in Geological Sciences from the University of South Carolina. Currently, she is retired but continuing her work at Georgia Institute of Technology.

### Speaker Publications:

1. “Stable Isotope differences among morphotypes of *Neogloboquadrina pachyderma* (Ehrenberg) - Implications for high-latitude paleoceanographic studies”; *Terra Nova* / 2007 / 4(6)/ 693-700.
2. “Morphological Changes in Living Foraminifera and the Thermal Structure of the Water Column, Western North Atlantic”; *Palaios*/ 1989 Vol 4(6)/ 590.
3. “Shape and isotopic differences between conspecific foraminiferal morphotypes and resolution of paleoceanographic events”; *Palaeogeography, Palaeoclimatology, Palaeoecology*/ 1988 Vol 64.
4. “Fourier analysis of test shape of planktonic Foraminifera”; *Nature*/ 1981/ Vol 289, Issue 5797/ 485-487.

[32<sup>nd</sup> Nano Congress for Future Advancements](#); Webinar- June 12-13, 2020.

### Abstract Citation:

Nancy Healy, Future advancements – Where will the workforce come from to meet future nanotechnology R&D needs? *Nano Congress 2020, 32<sup>nd</sup> Nano Congress for Future Advancements*; Webinar- June 12-13, 2020.

(<https://nanocongress.nanotechconferences.org/abstract/2020/future-advancements-where-will-the-workforce-come-from-to-meet-future-nanotechnology-r-d-needs>)



### Biography:

From 2004 to 2017 Nancy Healy served as Education Director of the National Nanotechnology Infrastructure Network, National Nanotechnology Coordinated Infrastructure (NNCI) and Southeastern Nanotechnology Infrastructure Corridor. Prior to this, she was a program manager at the S.C. Commission on Higher Education focusing on K-12 science and math K-12