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A peek into the literature on the environmental health implications of the rapidly developing nanotechnology industry shows that the potential problem of exposure to airborne nanoparticles has not been adequately addressed. The health and safety of nanotechnology workers are of concern because these groups run the greatest risk of exposure to elevated concentrations of nanomaterials. However, a gap exists between the currently available particle measurement methods and those appropriate for the assessment of nanoaerosol exposure.

This book presents new ideas and methods to measure the surface area and local deposition of nanoparticles in the lungs and the true value of respirators. It proposes a nanoparticle dosimetric road map that can be used as a general strategy for the assessment of the dose, which is the most important physical cause of adverse effects on health in the case of nanoparticle exposure. The book suggests the use of 1 nm radioactive particles, called unattached activity of radon progeny, as a safe experimental tool for nanoparticle studies, including human studies. It discusses the problems related to the general strategy of risk assessment in nanoparticle exposure and concrete parameters related to dosage. The ideas presented in this book help close the gaps in our knowledge of aerosols in the nanometer range and improve our understanding of nanoparticle behavior in the air and in the human body.



Lev S. Ruzer (1922–2014) was a researcher in the Indoor Environment Department, Environment Energy Technologies Division, at the Lawrence Berkeley National Laboratory, USA. He received his education in the former USSR and began his scientific career with research on dose assessment in animals exposed to radon and

its decay products. On the basis of this theoretical and experimental work, he obtained his degree as a candidate of physicomathematical sciences (equivalent to a PhD) in 1961 from the Moscow Engineering Physics Institute. From 1961 to 1979, he was the founder and chair of the Aerosol Laboratory at the Institute of Physical-Technical and Radiotechnical Measurements, Moscow. The set of installations developed under his supervision for generating and measuring different types of aerosols was certified as the State Standard of Aerosols in the former USSR. This work did not have an equivalent at the time. His book on radioactive aerosols came out in 1968. Dr. Ruzer arrived in the United States in 1987 and joined the Lawrence Berkeley National Laboratory in 1989. He published more than 130 papers, edited 2 books, authored 3 books, and had 3 patents to his credit. He was on the editorial boards of several international journals.