



# University of Pittsburgh

**RADON PROJECT**  
Department of Physics and Astronomy  
Date: May 20, 2009

National Medal of Technology and Innovation  
Nomination Evaluation Committee  
Attention: Jennifer Lo, Program Manager  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Re: Nomination of Dr. Zalman M. Shapiro

Dear NMTI Committee Members:

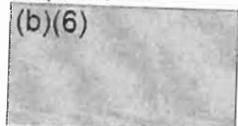
It gives me great pleasure to write in support of the nomination of Dr. Zalman M. Shapiro for the National Medal of Technology and Innovation, in recognition of his many outstanding and diverse contributions. I believe I am particularly well qualified to evaluate both the importance of Dr. Shapiro's contributions to the development of the nuclear power industry (and related areas) and the importance of the contributions of nuclear energy to the economic, environmental, and social well being of the United States.

I am currently Professor-Emeritus of Physics and Astronomy and of Environmental and Occupational Health at University of Pittsburgh. My area of expertise is nuclear physics, and I have been Chairman of the Division of Nuclear Physics of the American Physical Society. Of particular relevance here is my work in the area of nuclear energy, including my book "the Nuclear Energy Option" (Plenum Publishing Co., New York, 1990). I am a strong proponent of the use of nuclear power.

Dr. Shapiro and I are both Pittsburgh residents. I have known him personally for many years and have become very well acquainted with his career and his work.

Dr. Shapiro's work in 1949-1953, while at Westinghouse, in developing the process for producing commercial amounts of pure, crystal bar zirconium is well known. His work enabled him to design the apparatus for large-scale, low-cost production of zirconium and hafnium that are very important in the construction of nuclear reactors. This was crucial to the success of the first nuclear-powered submarine and subsequently for commercial reactors. The use of nuclear propulsion for naval vessels revolutionized the U.S. Navy, and throughout the Cold War, provided the most important key to our Nation's defense.

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His work contributed substantially to the development of the nuclear energy industry. The nuclear power industry, which now produces 20% of U.S. electricity, is the only technology now capable of massive generation of electricity without contributing to the global warming problem. In my view, the importance of nuclear energy (and, therefore, of Dr. Shapiro's technological contributions) cannot be overstated. I have written and lectured extensively on this topic. The advantages of nuclear energy are relevant to every aspect of American life, including (1) averting the environmental consequences from the use of fossil fuels, (2) reducing U.S. dependence on imported oil with its attendant national security and economic consequences, and (3) providing a reliable source of energy for the indefinite future long after the world's supply of fossil fuel has been exhausted.

Dr. Shapiro made other notable contributions as well which are addressed in his CV, not the least of which is his most recent patent for a significantly improved method for the synthesis of large gem-quality diamonds. This latest inspiring achievement, at age 89, holds great promise for the future of the diamond industry and its associated economic and technological benefits.

Clearly, Dr. Zalman Shapiro's contribution to the development of nuclear energy as a power source has been and will continue to be immensely important to our country. For this and all of his other impressive technological innovations for betterment of humanity and its environment, I am firmly convinced that he richly deserves the National Medal of Technology and Innovation.

Very truly yours,



Dr. Bernard L. Cohen  
Professor Emeritus

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