



University of Pittsburgh

Research Integrity Office

1710 Cathedral of Learning
Pittsburgh, PA 15260

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May 25, 2009

National Medal of Technology and Innovation
Nomination Evaluation Committee
c/o The United States Patent and Trademark Office
Attention: Jennifer Lo, Program Manager

RE: Nomination of Zalman M. Shapiro

Dear NMTI Committee Members:

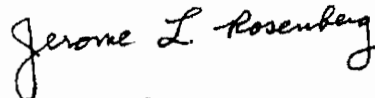
I am pleased to write in support of the nomination of Dr. Zalman M. Shapiro for the National Medal of Technology and Innovation. I met the nominee shortly after I arrived in Pittsburgh in 1953, and we have been acquaintances, although not scientific co-workers, since then. We are both physical chemists, having received our Ph.D. degrees in the same year, 1948, he from Johns Hopkins and I from Columbia. His major post-Ph.D. professional activity has been with the commercial and governmental sectors – Westinghouse Electric, AEC Bettis Naval Nuclear Power, Nuclear Materials and Equipment Corporation, and ARCO Chemical. My entire comparable experience has been within academic institutions, first at the University of Chicago and, since 1953, at the University of Pittsburgh.

One consequence of Dr. Shapiro's non-academic institutional affiliations is that his major scientific achievements have not appeared in the peer-reviewed literature, but rather in scientific reports to government or later commercial sponsors and in patent applications. His mark on society was realized by the general scientific community only years after the fact by the outcomes and applications of his innovative work. The achievement that has brought him the most public recognition was his concentrated effort at Bettis in devising chemical and metallurgical processes for producing for the first time large quantities of pure zirconium and hafnium, for the coating and controlling uranium fuel elements for nuclear reactors. His exploitation of the controlled decomposition of zirconium tetraiodide required the handling of corrosive solids and gases at high temperature and high vacuum and resulted in production of zirconium of extraordinary purity, ductility, and non-corrosive quality required for cladding fuel rods. This technology was used in the design of the first nuclear-powered submarine, the Nautilus, and in the following build-up of the entire nuclear submarine fleet. Later applications occurred in commercial nuclear power reactors.

Later innovations have also had important applications of social and economic relevance, including the use of radioactive isotopes for irradiating food and for powering long-lasting heart pacemakers.

In his private life, Dr. Shapiro has been an exemplary citizen who has taken an active interest in community affairs, in educational activities, and in contemporary issues reaching the level of federal policy.

Sincerely yours,

A handwritten signature in cursive script that reads "Jerome L. Rosenberg". The signature is written in dark ink and is positioned above the printed name.

Jerome L. Rosenberg
Research Integrity Officer