BRIAN MURPHY's Curriculum Vitae

EDUCATION

B.Sc. (General), 1960; National University of Ireland, University College, Dublin (N.U.I., U.C.D.); awarded with Distinction; Degree Subjects: Experimental Physics, Mathematical Physics, and Mathematics.

B.Sc. (Special), 1961; N.U.I. (U.C.D.); awarded with First Class Honors; Major: Experimental Physics

M.Sc. (Physics), 1963; N.U.I. (U.C.D.).

Ph.D. (Physics), 1973; University of Virginia

EMPLOYMENT

1992 – Present. Nuclear Analysis Methods and Applications Group, Nuclear Science and Technology Division, Oak Ridge National Laboratory.

1990 – 1992. Coordinator for Strategic Planning in the Computing and Telecommunications Division, Martin Marietta Energy Systems (MMES), Oak Ridge, TN

1981 - 1990. Department Head, Technical Applications, Computing and Telecommunications Division, Martin Marietta Energy Systems at Oak Ridge National Laboratory. Besides administrative duties, was involved in studies of beam-particle physics, atmospheric dispersion modeling and computer modeling uncertainty.

1977-1981. Section Head, Computing Applications, Union Carbide Corporation, Oak Ridge National Laboratory. Management responsibilities and computer modeling studies in environmental and nuclear safety studies.

1974 - 1977. Analyst (Physics Dept.), Computing Applications, Computer Science Division, Union Carbide Corporation, Oak Ridge National Laboratory. Application of computers in physics, energy, safety and environmental studies.

1972 - 1974. Research Associate, Physics Department, University of Wisconsin, Madison. Research on heavy-ion and charged-particle reaction studies.

1967 - 1972. Research Assistant, Teaching Assistant and Scholarship Holder, Physics Department, University of Virginia. Nuclear structure and nuclear reaction mechanism studies.

1965 - 1966. Research Associate, Radiation Physics Division, Medical College of Virginia, Richmond. NASA funded research on gamma-ray spectrometry and radiation dosimetry.

1963 - 1965. Research Officer, Agricultural Institute, Dublin, Ireland. Soil moisture and Agricultural Meteorology studies. Supervised a network of meteorological observation stations. Acted as liaison with Irish Meteorological Service. Performed committee work on National Water Balance Study.

RELEVANT PROFESSIONAL EXPERIENCE

Since June 1992, Murphy has worked in what is now the Nuclear Analysis Methods and Applications Group of the Nuclear Science and Engineering Division at ORNL. Specific examples of work areas are:

- Characterization of spent fuel from a variety of US, European, and Russian reactors with particular emphasis on radiological properties, safety and long-term disposal issues.
- Actinide and fission-product inventory studies for fast reactors (actinide transmutation and partitioning).
- Fuel burnup studies for the Fissile Materials Disposition Program (FMDP). This effort was under the ARIANE project (within FMDP); Murphy played a significant role in estimating the neutronic and radiological properties of spent MOX fuel, comparing estimates with experimental results and determining uncertainty ranges for all important actinides and fission products.
- Studies of the properties of mixed-oxide (MOX) fuel as compared to conventional uranium fuel.
- Spent-fuel characterization for Safeguards studies to combat the diversion of nuclear materials.
- Neutronic studies for the Spallation Neutron Source (SNS): Design studies of moderator performance; heating and damage studies for heavily irradiated parts of the moderator and reflector components in the target region.

Murphy has worked significantly in two other technical areas while a staff member at ORNL:

Design studies on rf-accelerators: These studies were on the production of neutral particle beams and involved ion-optic calculations on negative-ion sources, low-energy beam transport systems, bunchers, Radio-Frequency Quadrupoles (RFQs), and neutralizers. Concurrently worked on eddy current estimation in tokamak vessels containing thermonuclear plasmas and subject to large magnetic transients.

Atmospheric transport studies: Local, regional, and continental scale patterns of

dispersion for atmospheric pollutants and radioactive materials. Regional studies of energy use patterns and their environmental and economic consequences. Worked cooperatively with researchers at the National Oceanic and Atmospheric Administration (NOAA) laboratory in Oak Ridge.

OTHER RECENT PROFESSIONAL ACTIVITIES:

1986-95: Member, University of Chicago Review Committee for the Energy and Environmental Systems Division at Argonne National Laboratory. In 1988 and 1995, served as Committee Chair.

1990-92 and 1995: Chairman and Member, Review Committee for Energy Systems Division at Argonne National Laboratory.

1994-96: Member, Oak Ridge National Laboratory, Seed Money Proposal Review Committee.

1995: Member, Review Committee, State of Kentucky Experimental Program to Stimulate Competitive Research

PUBLICATIONS

Murphy has over 90 publications including journal articles, conference presentations and technical reports. A publication list is available on request.