

CEDRIC J. POWELL

NBS/NIST: 1962-2006

EDUCATION:

University of Western Australia, BS (Physics), 1956
University of Western Australia, PhD (Physics), 1962

CITATION:

For exceptional scientific and organizational work in establishing the physical basis (and infrastructure) for electron spectroscopies of solids, especially as applied to quantitative surface analysis and surface standards.

POSITIONS HELD AT NBS/NIST:

Physicist, Atomic Physics and Optical Physics Divisions, Institute for Basic Standards, 1962-1978
Chief, Surface Science Division, Center for Chemical Physics, 1978-1991
Leader, Surface Spectroscopies and Thin Films Group, Surface and Microanalysis Science Division, 1991-1994
NIST Fellow, Surface and Microanalysis Science Division, 1994-2006
NIST Scientist Emeritus, Surface and Microanalysis Science Division, 2007-Present

HONORS:

US Department of Commerce Silver Medal (1983) and Gold Medal (1986)
Award of Merit, American Society for Testing and Materials (ASTM) (1988)
Riviere Prize, UK ESCA Users Group (1992)
Creation of *Cedric Powell Award* by ASTM Committee E-42 on Surface Analysis (1993)
Creation of *Powell Prize* by the Surface Analysis Society of Japan (1995)
Albert Nerken Award, American Vacuum Society (2001)
Technology Prize, International Union of Vacuum Science, Technique, and Applications (2007)

MEMBERSHIPS:

American Physical Society, American Vacuum Society, American Assn. for the Advancement of Science
ASTM Committee E-42 on Surface Analysis, chairman (1980-85)
Board of Trustees, Gordon Research Conferences (1982-88), chairman (1985-86)
Board of Directors, American Vacuum Society (1988-89)
ISO Technical Committee 201 on Surface Chemical Analysis, chairman (1992-98)

PUBLICATIONS:

Co-editor of 3 books, co-author of 5 NIST databases, and an author of more than 240 publications including:
Powell, C. J., "Contrasting Valence-Band Auger-Electron Spectra for Silver and Aluminum", *Phys. Rev. Letters* 30, 1179 (1973)
Powell, C. J., "Attenuation Lengths of Low-energy Electrons in Solids", *Surface Science* 44, 29 (1974)
Powell, C. J., "Cross Sections for Ionization of Inner-shell Electrons by Electrons", *Rev. Mod. Phys.* 48, 33 (1976)
Powell, C. J. and Seah, M. P., "Precision, Accuracy, and Uncertainty in Quantitative Surface Analyses by Auger-Electron Spectroscopy and X-ray Photoelectron Spectroscopy", *J. Vac. Sci. Technol. A* 8, 735 (1990)
Tanuma, S., Powell, C. J., and Penn, D. R., "Calculations of Electron Inelastic Mean Free Paths. II. Data for 27 Elements over the 50-2000 eV Range," *Surface and Interface Analysis* 17, 911 (1991)
Powell, C. J. and Jablonski, A., "Evaluation of Measured and Calculated Electron Inelastic Mean Free Paths Near Solid Surfaces," *J. Phys. Chem. Ref. Data* 28, 19 (1999)