Larry W. Burggraf

Ph.D.
Professor of Chemical and Engineering Physics

Contact:

Comm: 937-255-3636 x4507
DSN: 785-3636 x4507

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View Department

Dr Larry Burggraf has served the US Air Force since 1970. In his Masters research (1969-1970) in chemistry, he used an electron linear accelerator for pulse radiolysis kinetics of hydrocarbons at The Ohio State University (AFIT-CI). At the Armament Development Test Center at Eglin Air Force Base (1971-1974) he served as Project Engineer in development of several successful guided weapon systems. He began his MS Degree in applied math at the University of West Florida (awarded 1977) and applied queing theory to model sample throughput at the Air Force Technical Application Center (AFTAC) laboratory (1974-1977). At AFTAC he served as Nuclear Research Officer and Chief of the NI Advanced Technology Unit. He let a R&D team in construction and maintenence of low-level radiation measurement systems implementing the first pulse shape discrimination techniques in AFTAC counting systems; he supervised design and construction of the laboratory tritium measurement system; he supervised airborne tritium sampling research; his R&D team designed, built and conducted operational evaluation of a system for continuous airborne measurement of xenon radioisotopes. Between 1977 and 1985 he taught at the US Air Force Academy (USAFA) in the Department of Chemistry (DFC). During (1980-1981) he was assigned to complete his Ph.D. in Chemistry at the University of Denver doing spectroscopy of metal ion chemistry on modified silica and alumina surfaces (AFIT-CI DG). At USAFA DFC he taught courses in general, physical and analytical chemistry; conducted experimental and computational research in sol-gel silica chemistry; supervised all DFC nuclear measurements. He served as DFC Director of Advanced Curriculum; managing advanced measurement labs and instrument upgrades, managed chemical and nuclear safety programs. Dr Burggraf served as Program Manager for various basic research programs in the Department of Chemical and Atmospheric Sciences including Surface Chemistry, Molecular Dynamics, Computational Chemistry and Ceramics at the Air Force Office of Scientific Research (1985-1993). In 1992 he was appointed a Assistant Director of Chemistry and Materials Science to lead teams of managers and scientists to create new technologies and transfer technologies to AF Labs and industry. He promoted research and technology transfer with Dr Ahmed Zewail (Nobel Prize in Chemistry for femptochemistry 1999) and Dr Richard Smalley (Nobel Prize in Chemistry for buckyball discovery 1996). Dr Burggraf was appointed as Associate Professor in the Department of Engineering Physics (ENP) at AFIT in fall 1993 and was promoted as Professor of Engineering Physics on 5 September 2005. He has taught courses in nuclear measurements, nuclear chemical engineering, chemical physics, environmental monitoring, materials chemistry and positron chemistry. Dr Burggraf conducts research in nuclear radiation measurements, positron spectroscopy, radiation biochemistry, molecular spectroscopy and quantum chemistry with applications in WMD counter proliferation and electro-optical materials. Dr Burggraf serves as Curriculum Chair for the Materials Science Curriculum in ENP.

Education

Postdoctoral Associate, Computational Chemistry, Iowa State University, with M.S. Gordon, Computational Chemistry of Siliconates, 1993

Ph.D., Chemistry, University of Denver, with D.E. Leyden, Photoacoustic Spectroscopy of Chemically Modified Surfaces, 1981

M.A., Mathematics, University of West Florida, Queing Simulation of Sample Processing in a Production Lab, 1977

M.S., Chemistry, The Ohio State University, with R.F. Firestone, Pulse Radiolysis of n-Pentane and n-Pentane, Oxygen Solutions, 1971

B.A., Chemistry, Olivet Nazarene University, 1968

Publications

Journal Articles and Proceedings (peer reviewed):

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