

# DEPARTMENT OF MECHANICAL ENGINEERING

## WILLIAM MAXWELL REED SEMINAR SERIES

### “50 YEARS – and counting: A Career in the Sciences (and what is next?)”

Jim McDonough, Ph.D.  
University of Kentucky

**Abstract:** This talk will outline some of the key events in the 50+ year scientific career of Dr. J. M. McDonough beginning with undergraduate preparation at the *Ohio State University* and continuing through his early work at *McDonnell Douglas Missiles and Space* (now *Boeing*), his graduate work at *UCLA*—first in applied math and later in mechanical/aero-space engineering—and then to his post-doctoral professional career. This began with concurrent full-time positions at the *Aerospace Corporation* and part-time teaching at *UCLA*. It was followed by a full-time adjunct research-teaching appointment at *UCLA* and then a regular tenure-track position at the *University of Kentucky*. Dr. McDonough’s teaching has been in the areas of applied mathematics (mainly numerical analysis), fluid dynamics and thermodynamics. His research has relied on these areas with an emphasis on computational fluid dynamics and modeling/simulation of turbulent fluid flow. The talk will conclude with discussion of Dr. McDonough’s plans for his initial years of retirement.

**Bio:** Dr. McDonough spent his early life on small farms in central Ohio where he began driving a tractor in the fields by age 8. Immediately following the *Soviet Union*’s launch of *Sputnik* he became interested in rockets—especially propulsion systems—and built solid-propellant rocket motors while in high school. He earned a bachelor’s degree in Aeronautical and Astronautical Engineering with a specialty in jet and rocket propulsion from *the Ohio State University* in 1968. Upon graduation, he immediately began work at the *McDonnell Douglas Corporation* in Culver City, CA where he was an analyst in launch vehicle propulsion. He soon transferred to a research project employing propulsive control systems for anti-ballistic missiles. At the end of this project, he began full-time graduate studies in mathematics at *UCLA*, receiving a MA in Applied Mathematics in 1975 while working part time for a software-consulting firm in Los Angeles. He returned to *UCLA* full time for his doctoral studies in Mechanical/Aerospace Engineering in 1977, and received his PhD in 1980. He then began work in the Fluid Mechanics Department of *the Aerospace Corporation*, El Segundo, CA doing code development in computational fluid dynamics (CFD). In 1987 Dr. McDonough resigned from *the Aerospace Corporation* to take a full-time adjunct assistant professorship at *UCLA*, and in 1990 he came to the Mechanical Engineering Department at the *University of Kentucky* as an associate professor. Since then, he has taught both undergraduate and graduate courses in fluid mechanics, thermodynamics, numerical analysis, and CFD. He is a member of various technical organizations, including the *American Mathematical Society* and the *American Physical Society*; and his research in numerical analysis and simulation of turbulent fluid flow has produced over 150 refereed papers in archival journals and conference proceedings.

**Date:** Friday, November 30  
**Place:** CB 114

**Time:** 3PM  
**Contact:** Dr. Alexandre Martin 257-4462

Meet the speaker and have refreshments  
Attendance open to all interested persons