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Gary Giles is a member of the Modeling and Simulation Group in the Computational Sciences and Engineering Division at Oak Ridge National Laboratory. Mr. Giles has over thirty-eight years experience in fluid dynamics, computational fluid dynamics, heat transfer, and diffusion problems. He is experienced both with numerical analysis of such problems and in practical engineering applications.

In research, Mr. Giles has been a part of a very large variety of projects. He has done considerable work in conductive, convective, and radiant heat transfer, and mass transfer. The processes studied include the High Temperature Gas-Cooled Reactor (HTGR), the High Flux Isotope Reactor (HFIR), the Atomic Vapor Laser Isotope Separation (AVLIS) project, the Large Climate Moderating Envelope project (LCME), and the NASA microgravity Thermal Energy Storage system. Problems he has studied include analysis of the effect of non-uniformities of the fuel distribution in the plates for the proposed Advanced Neutron Source Reactor (ANS), and also modeling of the effect of exposure of the contents of reactor fuel shipping casks to a fire. He has done electrochemical mass transfer modeling electroforming and finishing processes. He has modeled the laser-annealing of semiconductor materials including the time-dependent diffusion of dopant materials in liquid and refreezing semiconductors including the segregation of the dopants at the boundary between the liquid and solid. He has modeled fluid flow and heat transfer in various manufacturing techniques including metal casting, laser cutting, and welding processes. He has worked on various aspects of centrifuge modeling for the last 30 years and is the Principle Investigator for the DOE/NA-22 National Uranium Enrichment Modeling and Analysis Center (NUEMAC) at ORNL. NUEMAC is the repository of centrifuge modeling codes for single centrifuge machine performance, machine dynamics, and cascade performance modeling for the US nuclear nonproliferation community. NUEMAC team members represent the most experienced of the current US centrifuge modelers. Mr. Giles is a Professional Engineer and has a B.S. in Aerospace Engineering and a M.S. in Mechanical Engineering from Georgia Institute of Technology.