Asian American Engineer of the Year

Dr. Rekha S. Rao

Principal Member of Technical Staff
Sandia National Laboratories

Citation of Accomplishment:

Original and sustained contribution to the development of numerical models for improving manufacturing processes while supporting future scientists and public education.

Dr. Rekha S. Rao is a Principal Member of Technical Staff at Sandia National Laboratories where she has worked since graduating from the University of Washington with a Ph.D. in Chemical Engineering in 1990. Dr. Rao received her B.S. degree with honors in chemical engineering from the University of California at Berkeley.

Dr. Rao is a finite element software developer and analyst for computational fluid dynamics and multiphysics applications, including free and moving boundary problems and non-Newtonian fluid mechanics. She has developed and implemented numerical methods for mixed hyperbolic/elliptical systems of equations using discontinuous Galerkin and other specialty methods. She has worked on a variety of projects during her 20+ years at Sandia, including low level radioactive waste disposal, flow-through porous media, viscoelastic flows, coating flows, polymerizing suspensions for encapsulation, fluid-solid interactions, injection loading of green ceramics, foam process models for encapsulation, mold filling for manufacturing, thermal batteries, and nuclear waste reprocessing. Dr. Rao's work is core to Sandia's mission and has been recognized by many Sandia awards.

Dr. Rao has authored or co-authored over 60 peer-reviewed scientific papers and reports and is one of the principal developers of the GOMA multiphysics code, an award-winning software product that is used at Sandia and many universities and companies. She has given many invited lectures at other government labs and universities. She has a history of service to technical societies such as the Polymer Processing Society (PPS), Society of Rheology (SOR), and US Association of Computational Mechanics (USACM), where she has helped organize meetings and mini-symposia. She serves as a reviewer for several journals and recently served as a guest editor for the International Journal of Numerical Methods in Fluids (IJNMF).

Dr. Rao is active in science education outreach to Albuquerque public schools through the CrossLinks Program, where she does hands-on science teaching to elementary school children. She is an active member and leader at the Siddha Yoga Dham Affiliate (SYDA) of Albuquerque where she has served on the Board of Directors as well as in various other capacities.