B I O G R A P H Y

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Dr. Todd M. Alam obtained his Ph.D in physical chemistry at the University of Washington utilizing solid state NMR to probe internal dynamics in oligonucleotides and related liquid crystal phases. This graduate work built on his dual Bachelors of Science degree in chemistry and biology from Northern Arizona University. He was a NIH Postdoctoral fellow at the University of Arizona under Prof. Michael Brown, where he became immersed in the theory of NMR spin-lattice relaxation for phospholipid in oriented membrane systems, developing theories to describe reorientational dynamics in odd-ordering potentials. The postdoc was followed by a research professor position at the Department of Chemistry, University of New Mexico in the NMR facility, before finally being lured to Sandia National Laboratories. For the past 22 years he has been the lab's NMR spectrocopist and is currently a Principal Research and Development Scientist in the Organic Materials Science Department at Sandia National Laboratories, Albuquerque, NM.

Dr. Alam's career has centered on the use and development of both high-resolution solution and solid state NMR spectroscopy for materials characterization. His research efforts have included studies of polymers, ceramics, glasses, nanomaterials, sol-gels, biomembranes, self-assembled templated materials, inorganic clusters, composites, thin films, and liquid crystals. Dr. Alam has published 195+ papers involving the NMR characterization over a wide range of materials, NMR studies of adsorption on zeolites and MOFs, studies of structural/NMR correlations in phosphate glasses and polymers, NMR investigations of reaction mechanisms plus kinetics ranging from polymer degradation, sol-gel formation and chemical agent decontamination, NMR relaxation theory, ab initio computation of NMR parameters, along with the development of novel solution and solid state NMR experimental techniques. Dr. Alam is also responsible for all NMR quality control and surveillance analysis covering a wide range of materials within the nuclear weapons complex.

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