Biography

My given name is Daniel Thomas Hallinan Jr. I am originally from Pennsylvania, where I attended Catholic schools through high school. In 2001, I received a Bachelor of Science degree in Chemical Engineering and a Bachelor of Arts in Philosophy from Lafayette College. After a hiatus from academics, I returned to Drexel University where I received a PhD in Chemical Engineering in 2009, studying the transport of ions and water in polymer electrolyte membranes for hydrogen fuel cells under Dr. Yossef A. Elabd. Having discovered the reward of teaching, I continued on the academic track with a postdoctoral fellowship at Lawrence Berkeley National Laboratory (LBL). There I studied block copolymer electrolytes for lithium batteries in Prof. Nitash P. Balsara's laboratory, conducting a variety of hard and soft x-ray scattering, tomography (3D imaging), as well as some x-ray spectroscopy at the Advanced Light Source of LBL. Now as an independent investigator at Florida State University (FSU), my students and I use several beamlines at the Advanced Photon Source (APS) of Argonne National Laboratory. FSU recognizes the importance of user facility research and supports our travel to the APS. With the hard x-rays of APS we are able to examine block copolymer and nanoparticle dynamics. Experimental measurement of local dynamics in heterogeneous polymer materials is unprecedented. These measurements promise to unravel intriguing observations of kinetic properties in nanostructured polymer materials that are significantly different from those in the bulk materials. We are eager to investigate faster processes on shorter length scales that will be made possible by the proposed upgrades.

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