The University of North Carolina at Charlotte (UNC Charlotte) is experiencing remarkable growth, and is officially the state’s “urban research campus.” Our current total enrollment is 27,983, and reflects an increase of nearly 1000 students per year over the past decade. We are projected to increase to over 30,000 students by 2020. Over 5,200 of the current students are graduate students, of which about 16% are enrolled in doctoral programs and the remainder in Master’s programs and post-baccalaureate and graduate certificate programs. The Principal Investigator’s home department is the Department of Mechanical Engineering and Engineering Science at UNC Charlotte, which is currently comprised of 38 full-time and 5 part-time/research faculty members from a variety of disciplinary backgrounds including Bioengineering, Computational Mechanics and Materials, Manufacturing and Metrology, Motorsports Engineering, Thermal Fluids Science and Engineering, Dynamics and Controls and a graduate student population of over 56 doctoral and 77 Masters students.