

**Bio:**

I am a first year Ph.D. student and a research assistant in the Mechanical engineering department and the nonwovens institute at NC State University. I work on investigating the influence of loading rate on the tensile behavior and the interactions between fibers and bond points in nonwoven composite materials. My research includes conducting dynamic and quasi-static tensile experiments on different nonwoven materials. Dynamic tensile tests are carried out by means of split Hopkinson tension bar whereby high strains of 1000 to 3000 strains/s are achieved. Quasi-static tests are achieved by using a standard load frame at rates up to 1m/s. Digital Image correlations (DIC) technique is utilized to generate the strain and stress fields obtained from high-speed cameras of 100,000 fps. Moreover, the high-speed cameras capture the interaction of fibers with bond points. To further track the motion of the fibers, the recorded frames are incorporated into a customized MATLAB image processing algorithm. This research will help elucidate the relationship between fiber realignment and the mechanical properties of nonwovens at various strain rates. It will also provide insights into why certain nonwovens fail in high speed production and lead to new types of nonwovens capable of shorter production time while providing improved mechanical properties.