

Current research interests include the mechanical characterization of nitinol and 316 stainless steel wires used in biomedical applications. Testing includes static and fatigue testing of fine wires representing a variety of process treatments ranging from different oxides, heat treatments, and effects of laser machining on the wires. Mechanical tests of interest include uniaxial tension testing, flex bending fatigue and rotating bending fatigue which produce fully reversed bending fatigue of the wire. Evaluation of the microstructure of nitinol throughout the fatigue life of the wire is also of particular interest.

Other interests include the biomechanical evaluation of composite bone as a substitute for cadaveric bone in the determination of mechanical performance of implanted orthopaedic devices and the development of computer simulations to augment the physical testing and investigate potential effects of declining bone density on the stability of the implants.