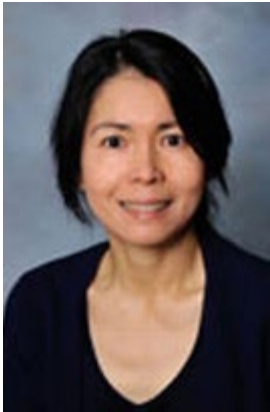




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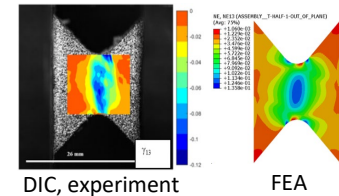
Research Interests

- Material testing and modeling of polymer foams.
- Rubber constitutive modeling and fracture mechanics.
- FEA of rubber and rubber components.
- Composite structures.
- Sandwich structures and materials.
- Impact mechanics.
- Blast mechanics; fluid-structure interactions.

Sample Research I:

Polymer Foams in Underwater Blast Protection

- Polymer foams in navy composite sandwich panels attenuate and absorb shock during underwater blasts.
- Current crushable foam models are based on metallic foams and not suitable for polymer foams.
- Pressure vessel experiments determine triaxial crushing behavior of foams.
- 3D material models are developed and implemented in ABAQUS to predict foam behavior.



Sample Research II:

Finite Element Analysis of Rubber Packing Elements

- Packing elements are rubber sealing components used in oil and gas tubing to prevent fluids and pressure from leaking through joints.
- When compressed, rubber extrudes and sealing capability is determined from contact stresses that develop between the packer element and tube.
- Finite element analysis is used to determine the sealing efficacy of several packing element designs.

