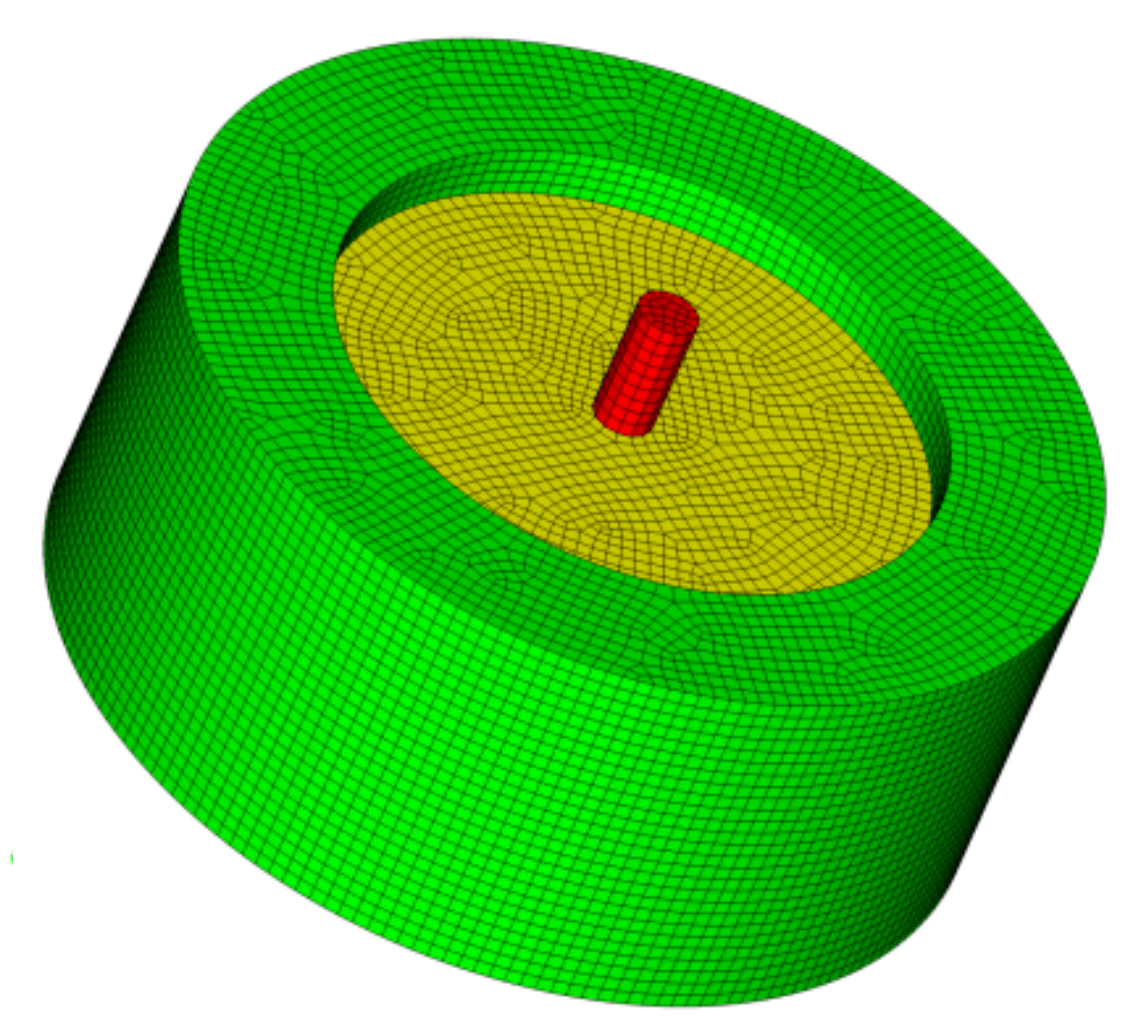
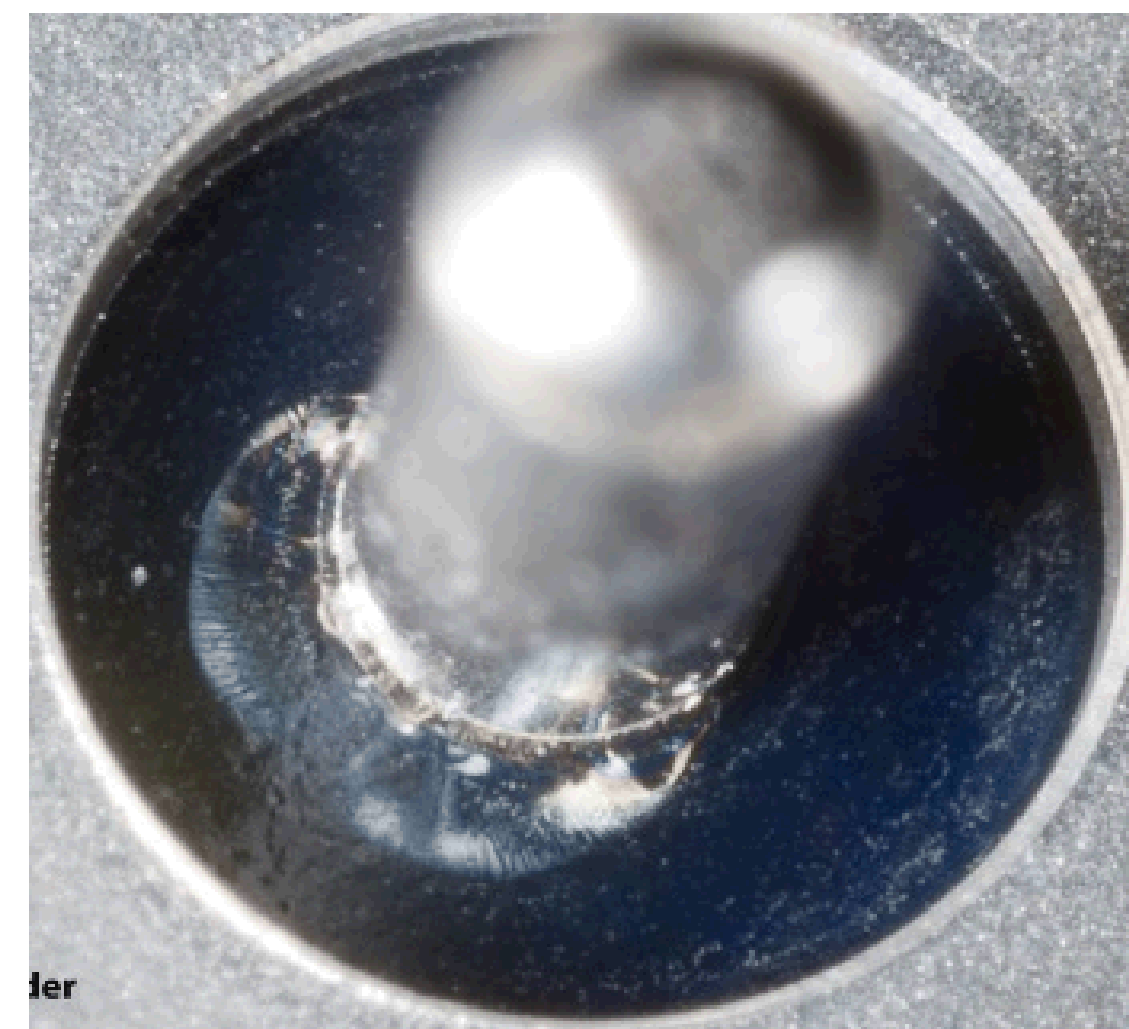
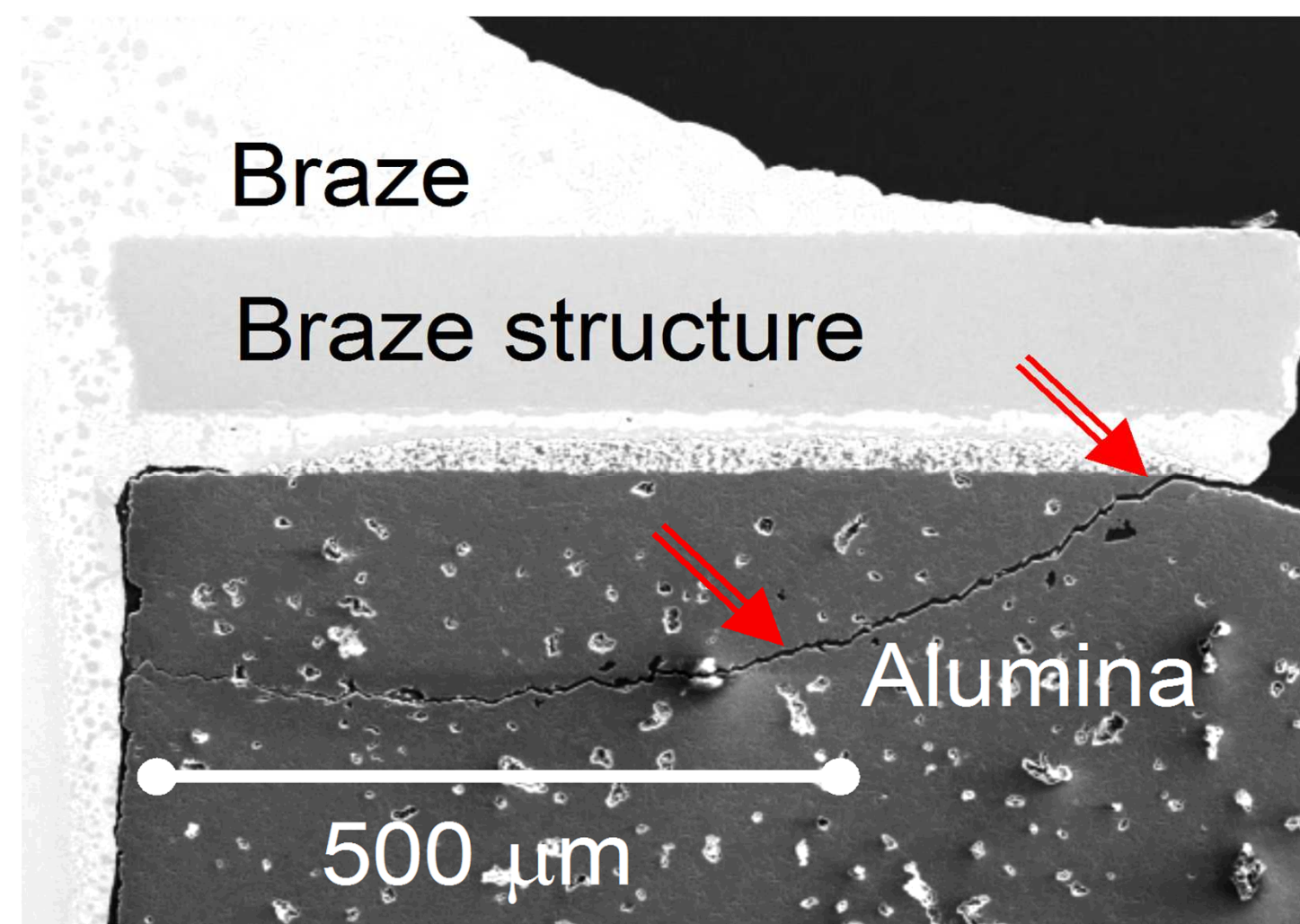
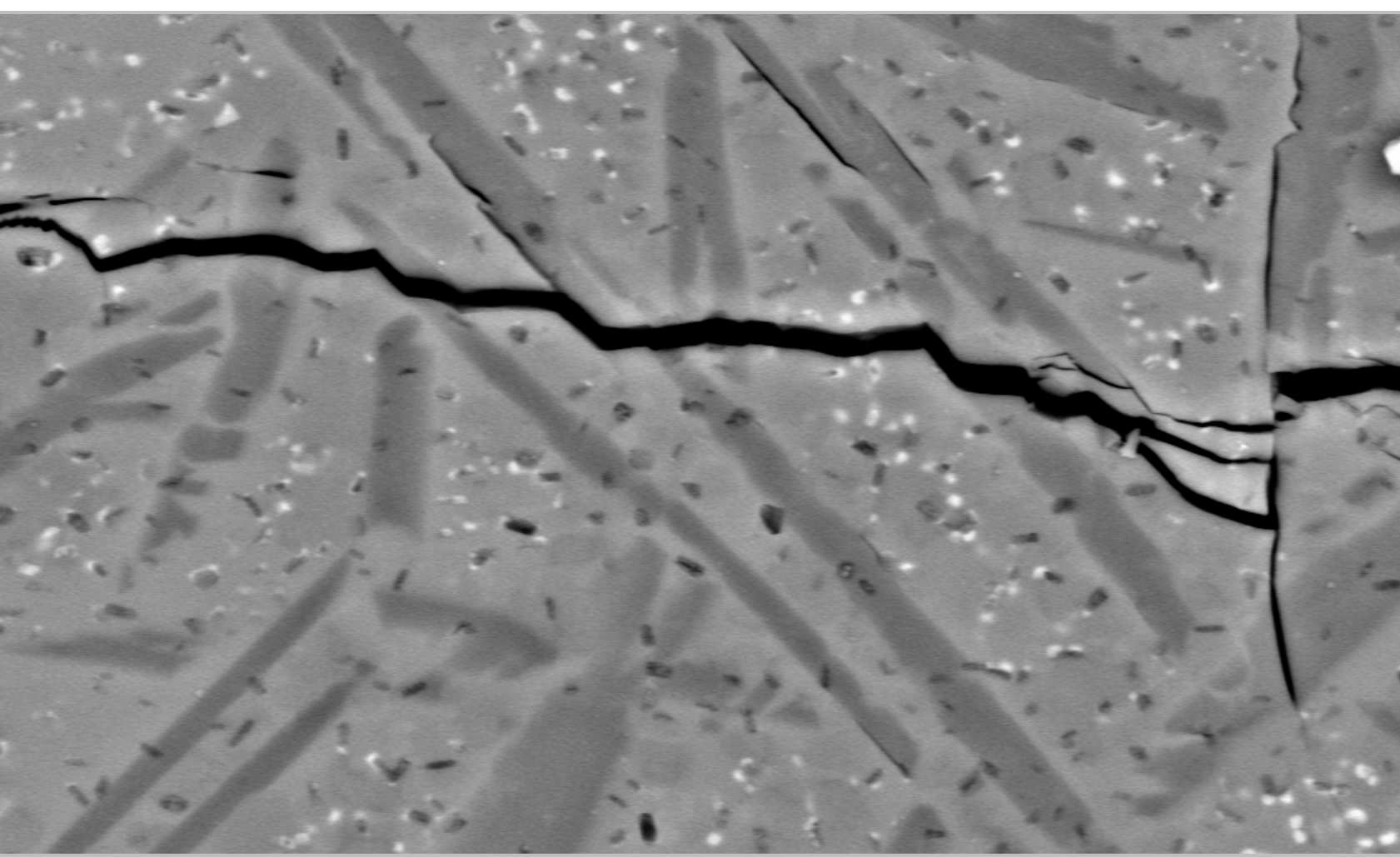
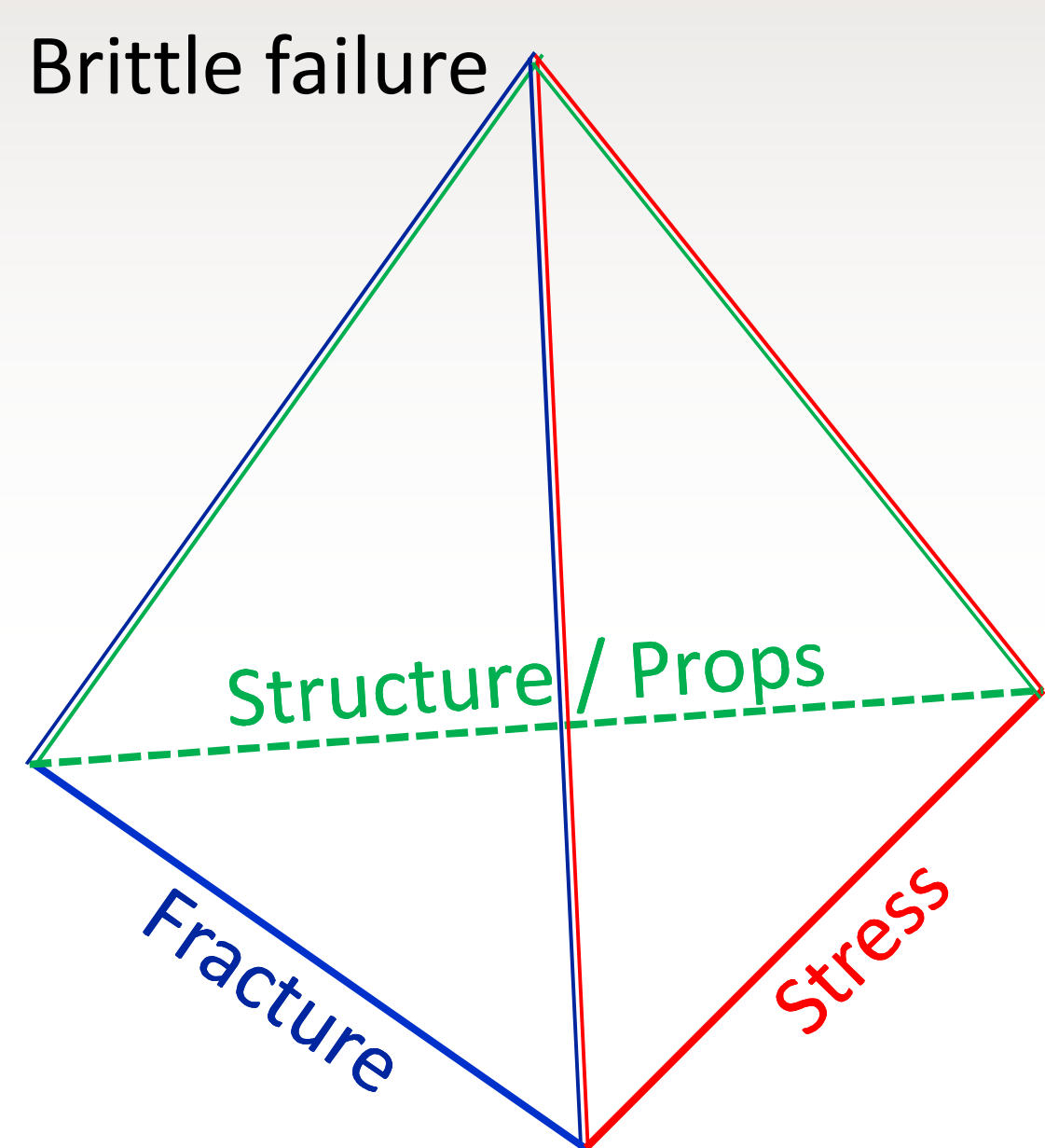


Exceptional service in the national interest

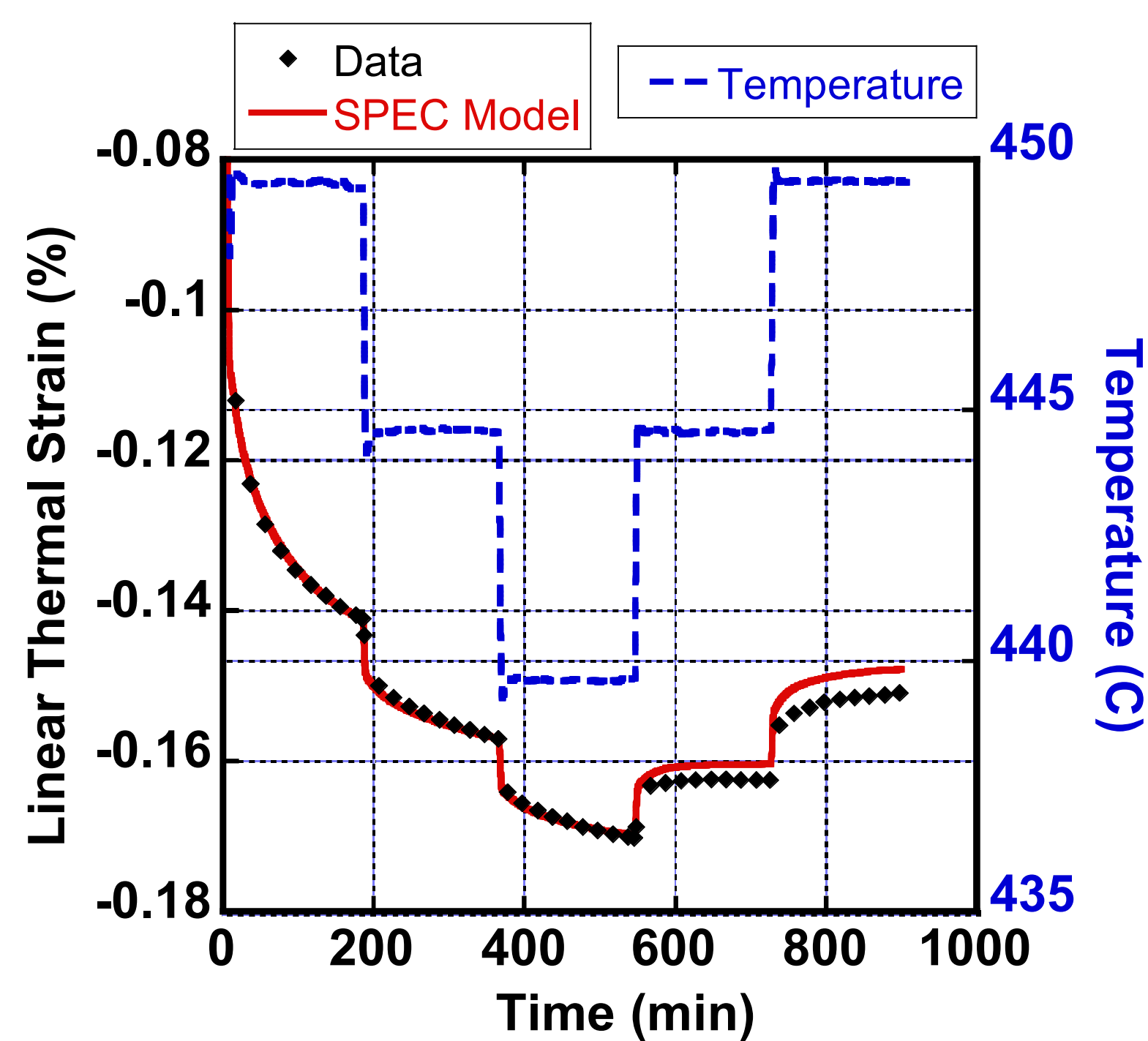


Predicting and Controlling Brittle Materials/Systems Performance and Reliability

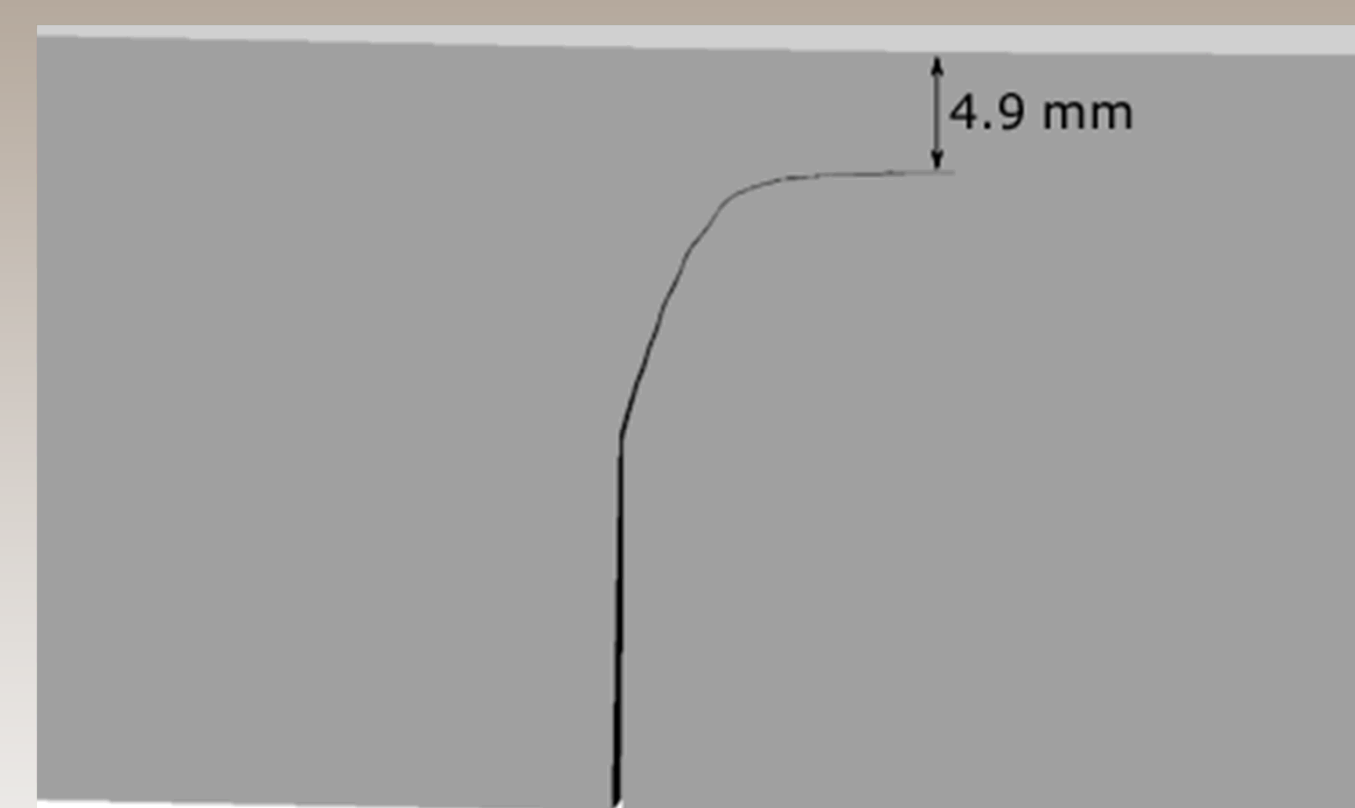
The **Brittle Materials Assurance Prediction Program** (BritMAPP) aims to develop quantitative, mechanics-based failure and lifetime reliability predictions of brittle materials/systems using experimentally-



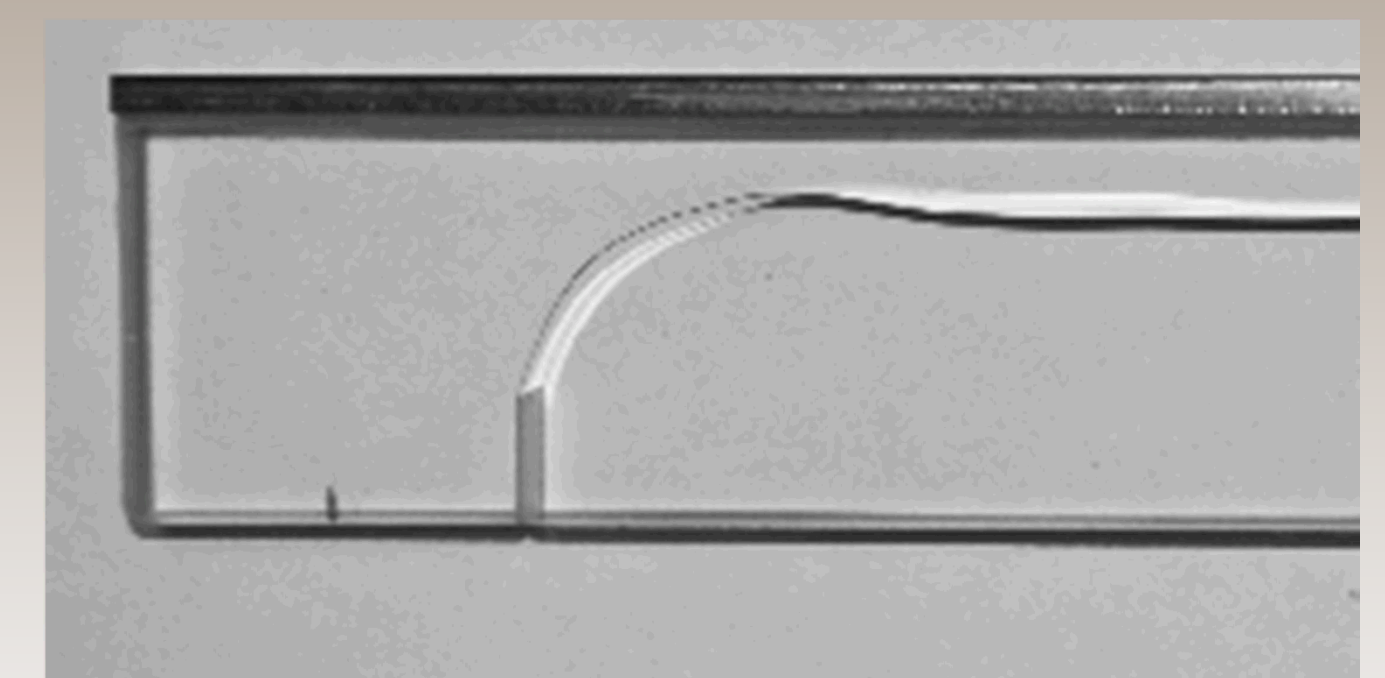
validated modeling integrating fracture mechanics, stress determination, and process-structure-property relations.



Sandia's SPEC viscoelasticity model predicts materials & processing dependent small strains for stress modeling with engineering accuracy (e.g. in glass-to-metal seals).

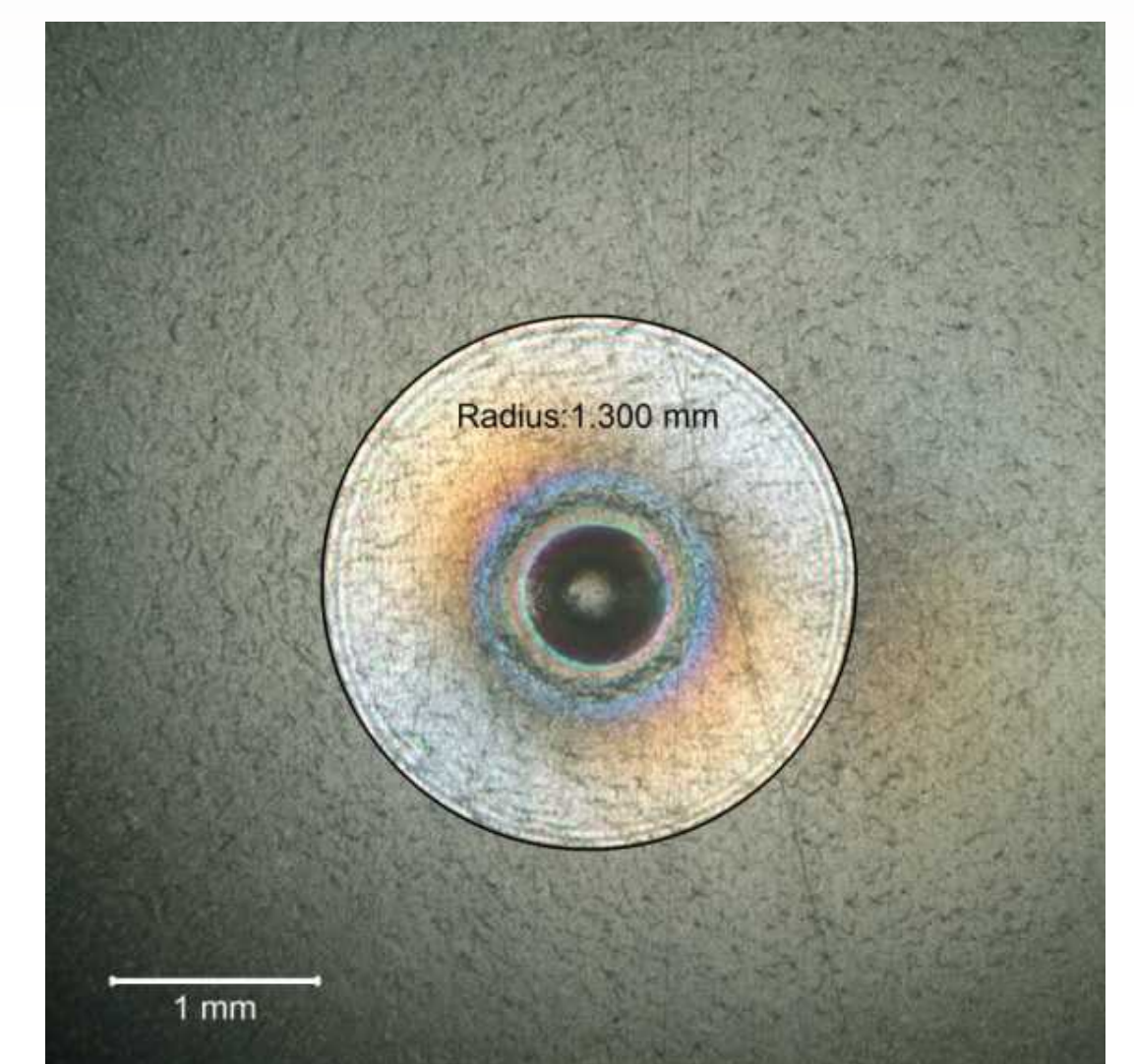
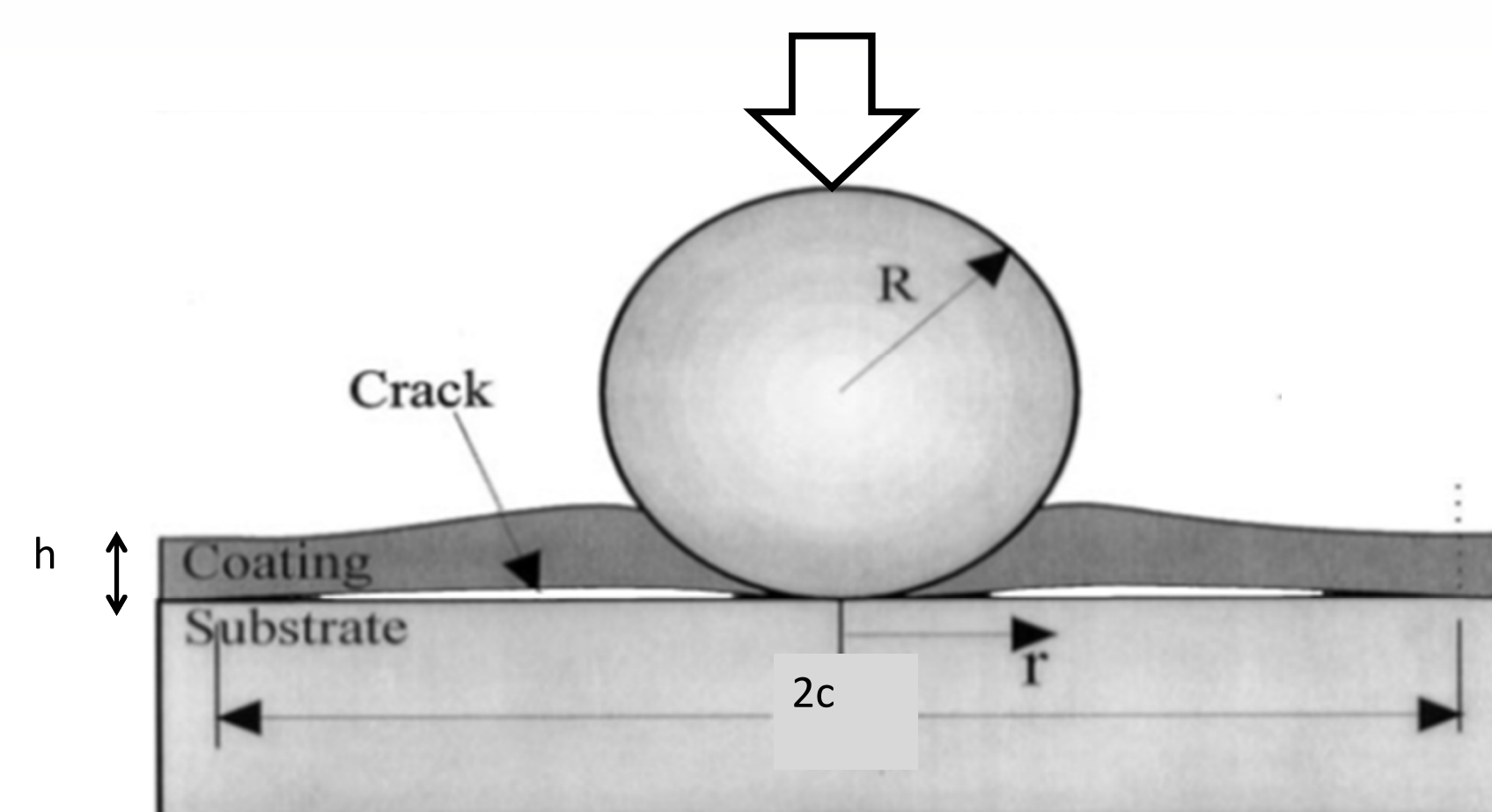


Finite element simulation

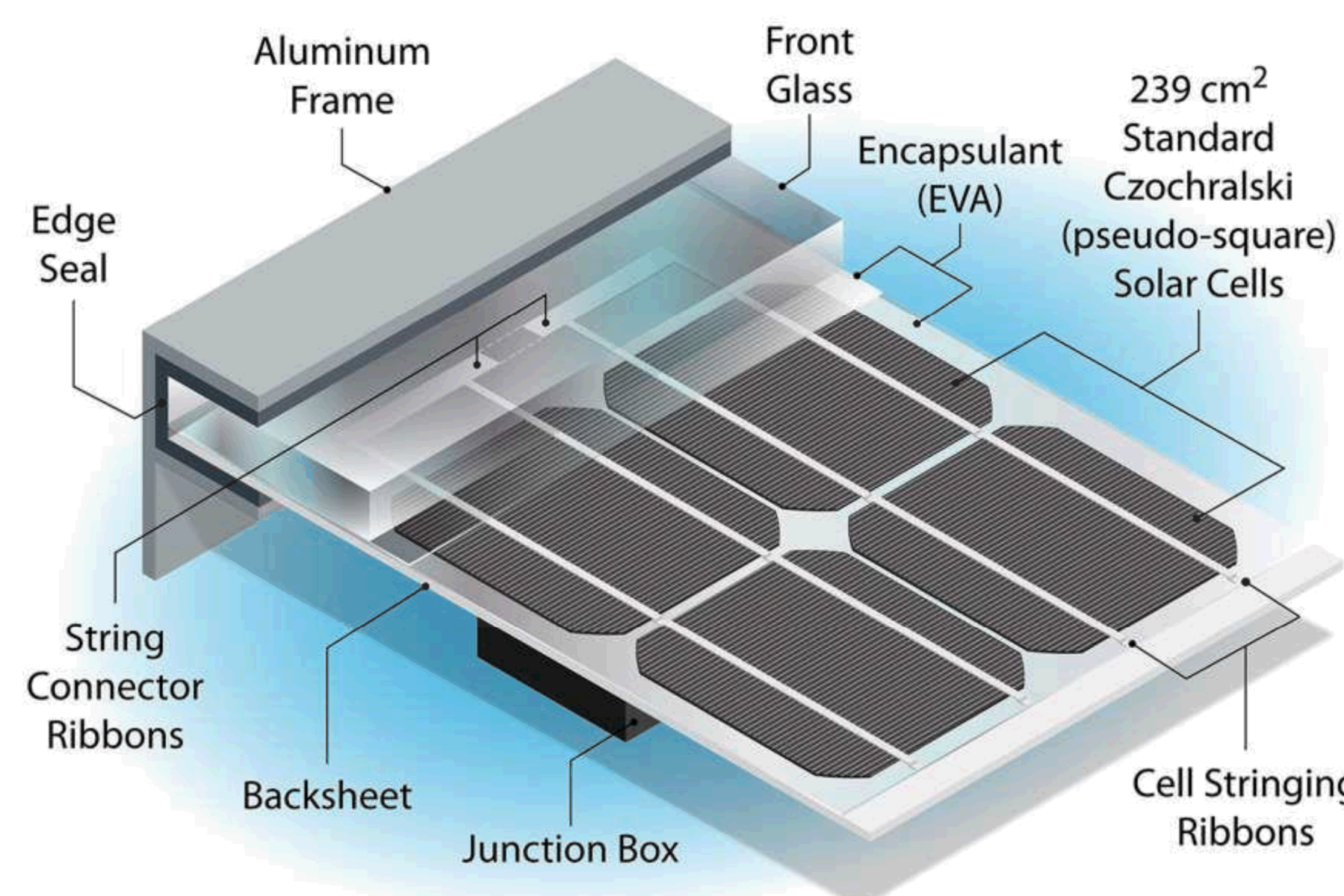


Experiment

Demonstrated ability to predict crack propagation and path in stressed glass.



Assessed interface strength/integrity from film delamination after indentation testing.



Sandia's expertise & capabilities in brittle materials failure & reliability directly apply to PV module design and materials/systems.

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