UQ Across Length Scales

- Uncertainty in initial and/or boundary (operating) conditions at the macro scale +
- Topological uncertainty at lower scales

*How do mechanical properties and damage evolve?*

*Will the device fail? With what probability?*

- Simple one way coupling: Upscale the property statistics to the macro scale and use to compute statistics

- Two way coupling: For tightly coupled problems, solve micro-macro stochastic PDEs simultaneously. Need information theoretic models to propagate uncertainty across scales