



Reliability Science Symposium

Spring 2022

March 22-23, 2022

calce

Center for Advanced Life Cycle Engineering

Electronic Product and Systems Consortium

FY23 Project Proposals

March 23, 2022

<http://www.calce.umd.edu>

University of Maryland

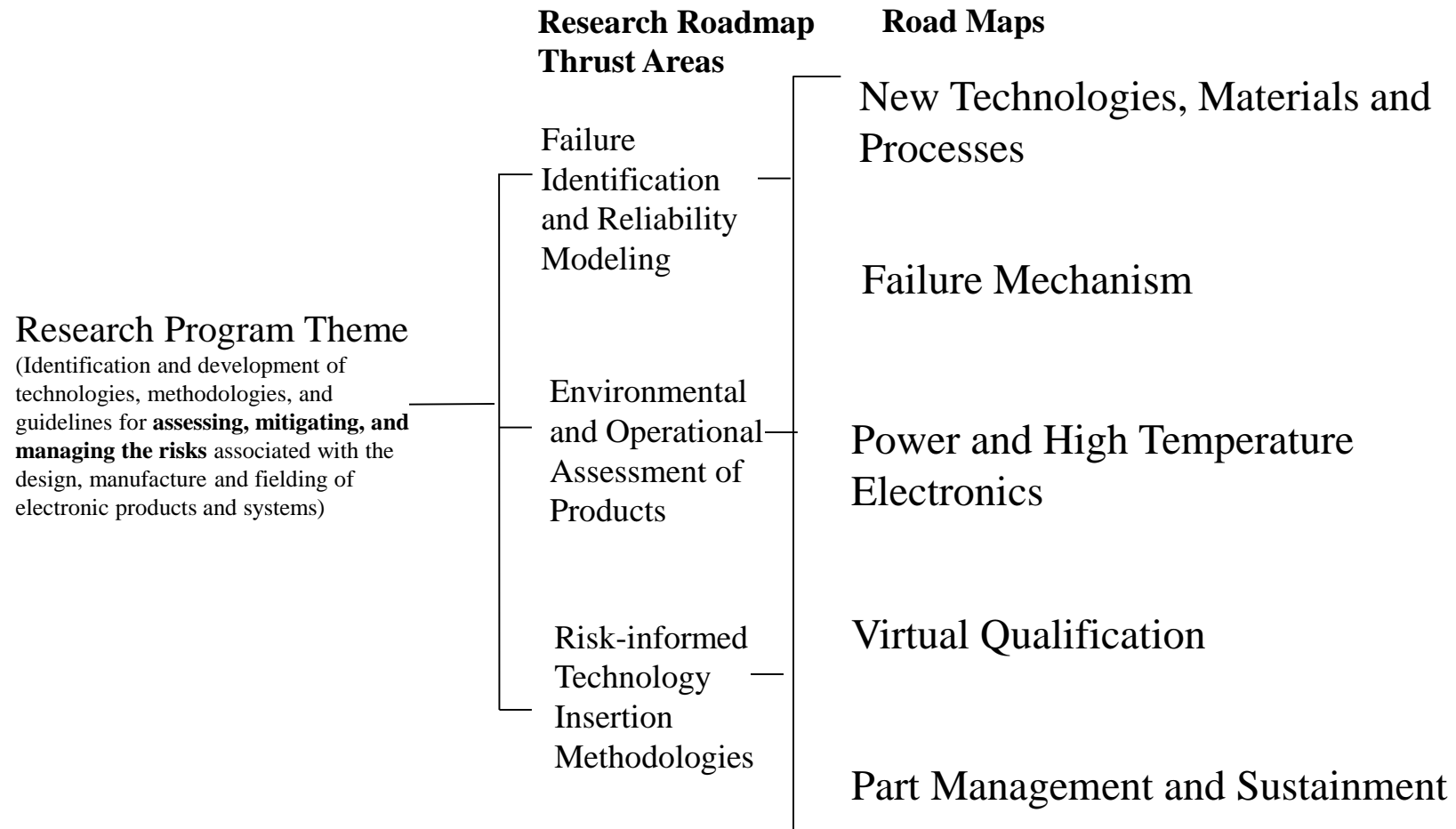
College Park, MD

CALCE EPS Consortium

The CALCE EPS Consortium provides a forum for *defining* fundamental research needs, *conducting* research, and *sharing* research findings among participating organizations. The research focus for the CALCE EPS Consortium includes risk assessment, mitigation, and management of electronic products and systems. Output from the consortium activities includes

- design and manufacturing methods,
- simulation techniques,
- models,
- experimental methods,
- guidelines,
- instructional information, and
- future engineers and technical leaders.

CALCE EPS Consortium Research Program



FY23 Project Development Schedule

<https://web.calce.umd.edu/members/projects/2023>

- Provide project ideas to CALCE staff (February)
- **Present “Proposals” at CALCE Consortium Spring Planning Meeting**
- Solicit and review feedback from interest survey² (March)
- Update project proposals on CALCE Web Site (May)
- Send out a “last request” for project comments³ (July)
- Post projects on website (September)
- Provide “Adopted Projects” for the Fall Planning Meeting (October)

Members may select one project proposal as “Member Critical”

Projects are adopted based on level of interest feedback and “Member Critical” designations.

FY23 Project Proposals

<https://web.calce.umd.edu/symposiums/RS/2022/Spring/2023proposals/>

P23-D1: Discrete Component Qualification Methods

P23-D2: Simulation and Assessment of Component Reliability

P23-M1: 3D Printed Power Packaging for Harsh Environment Electronics

P23-M2: Additively Manufactured Flexible Electronics for Harsh Environments

P23-M3: Machine Learning for Robust and Reliable Power Electronic Systems

P23-A1: Fatigue under Multiaxial Cyclic Creep and Plasticity in Oligocrystalline SAC Solder Joints

P23-A2: Paint Scratch Resilience for Electronic Products

P23-H1: Board level reliability assessment of Bi-based hybrid low melting solder as a function of Bi diffusion

P23-O1: Reliability of Low Temperature (i.e. BiSn) Solder Interconnects

P23-O2: Reliability of Lead-free High-Performance Solder Interconnects

P23-Z1: Selection Criteria for Use of Multilayer Ceramic Capacitors (MLCCs) with Ripple Current Loading Conditions

P23-Z2: Evaluation and Selection of Lubricants for Mechanical Interfaces

P23-Z3: Long Term Storage Reliability of Passive Electronic Components