



# Boundary Condition Challenge

Status & Discussion

Dynamic Environments Testing

IMAC XLI Austin, TX

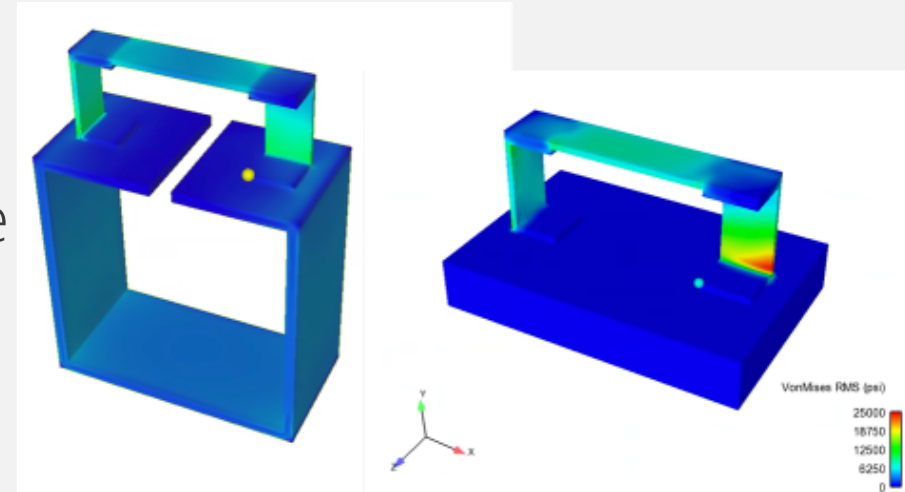
# Brief Update on the Boundary Condition Challenge

Active since about 2017

Current leadership

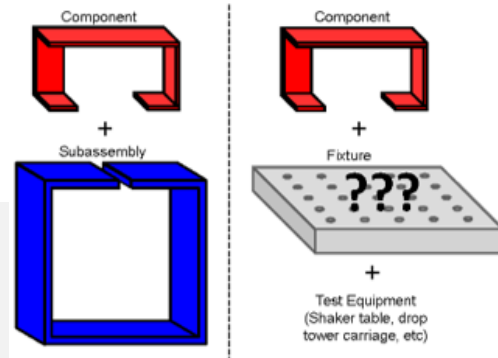
- Troy Skousen, Tyler Schoenherr, David Soine Sandia
- Jonathan Hower, Raymond Joshua, Kansas City National Security Campus
- Meeting quarterly

Generated 47+ IMAC papers since inception



The original challenge is still active area of research.

# Success Stories



- Awareness
- Focus on dynamic responses
- IMMAT
- Multi-input/axis test methods
- Dynamic fixture design
  - Model updating
  - Parameterized optimization
- Fixture Neutralization
- Attachment Impedance?
- Modal evaluation tools
- MDOF base input shaker methods?

What do you think are the noteworthy solution paths?

## Success in-work

- Single-axis test/dynamic fixture optimization
- Full-field response
  - Impact on fixture design
- Lumped parameter design approach
- Strain control

## Not there yet

- Dynamics-driven Topology Optimization

# Remaining Challenges

## Shock

- Shaker level shock
- Real shock – high G or velocity

How do we rationalize a single-axis test?

Connecting testing to damage

What are the remaining research paths?

Do you need a BARC?

