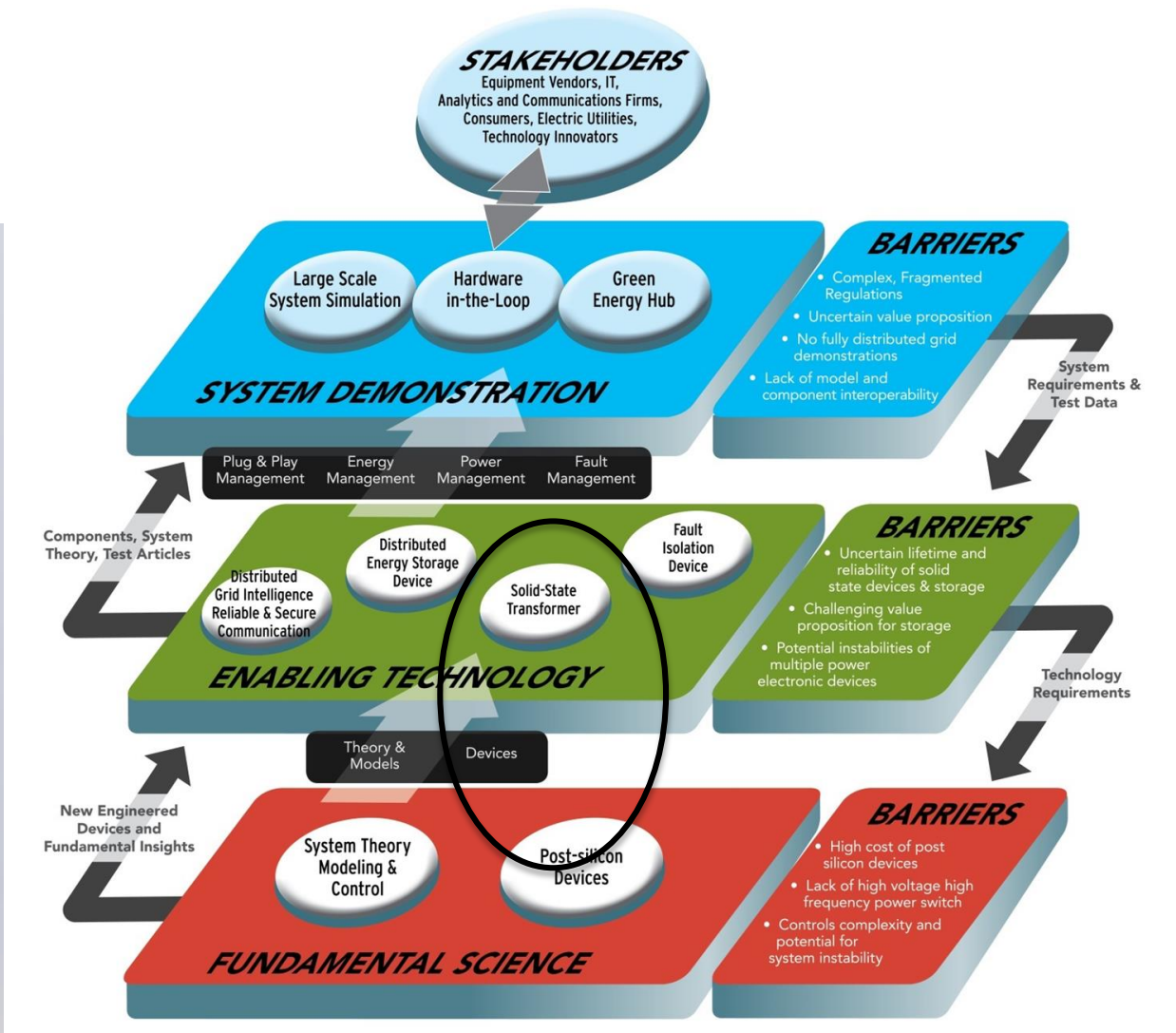
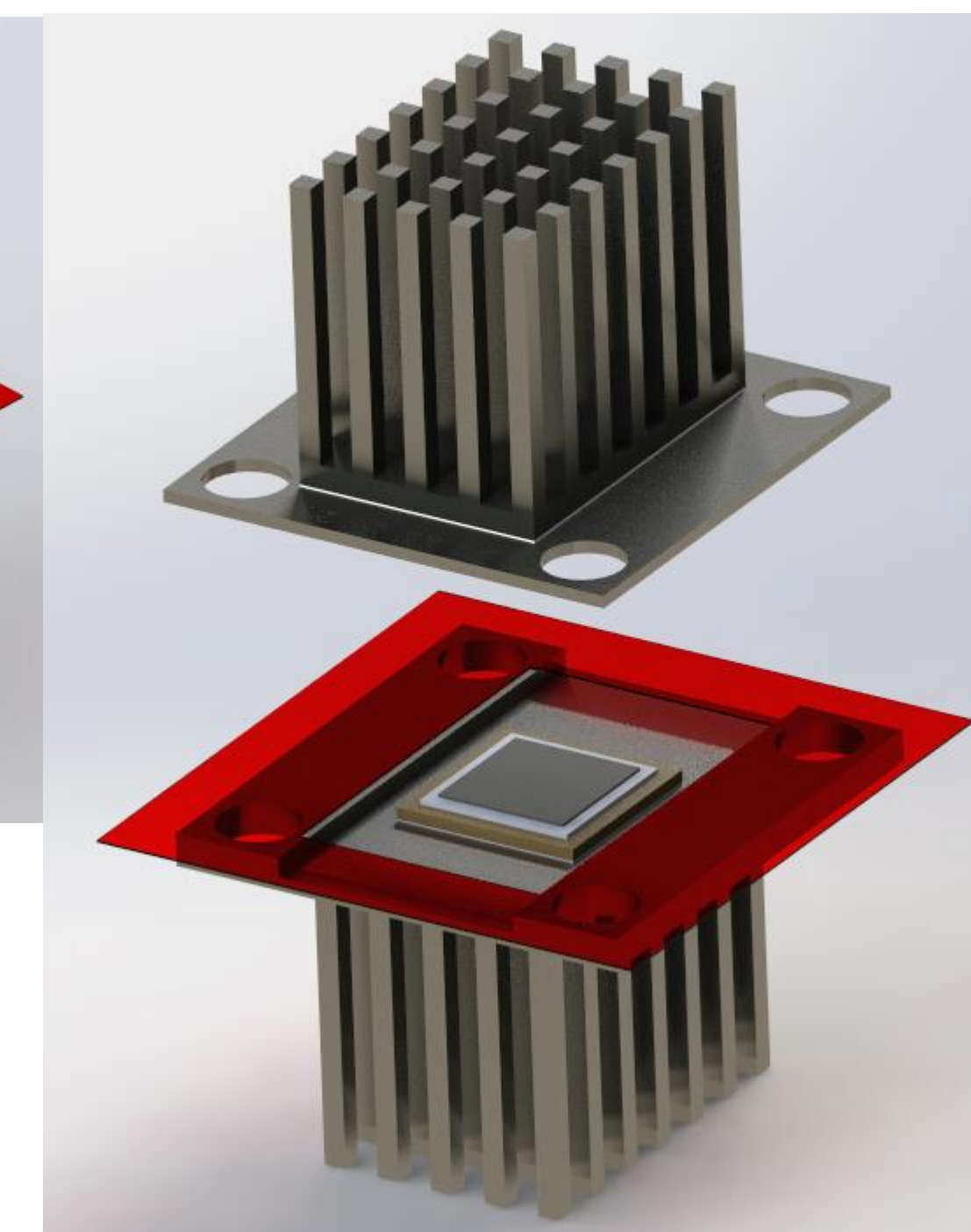
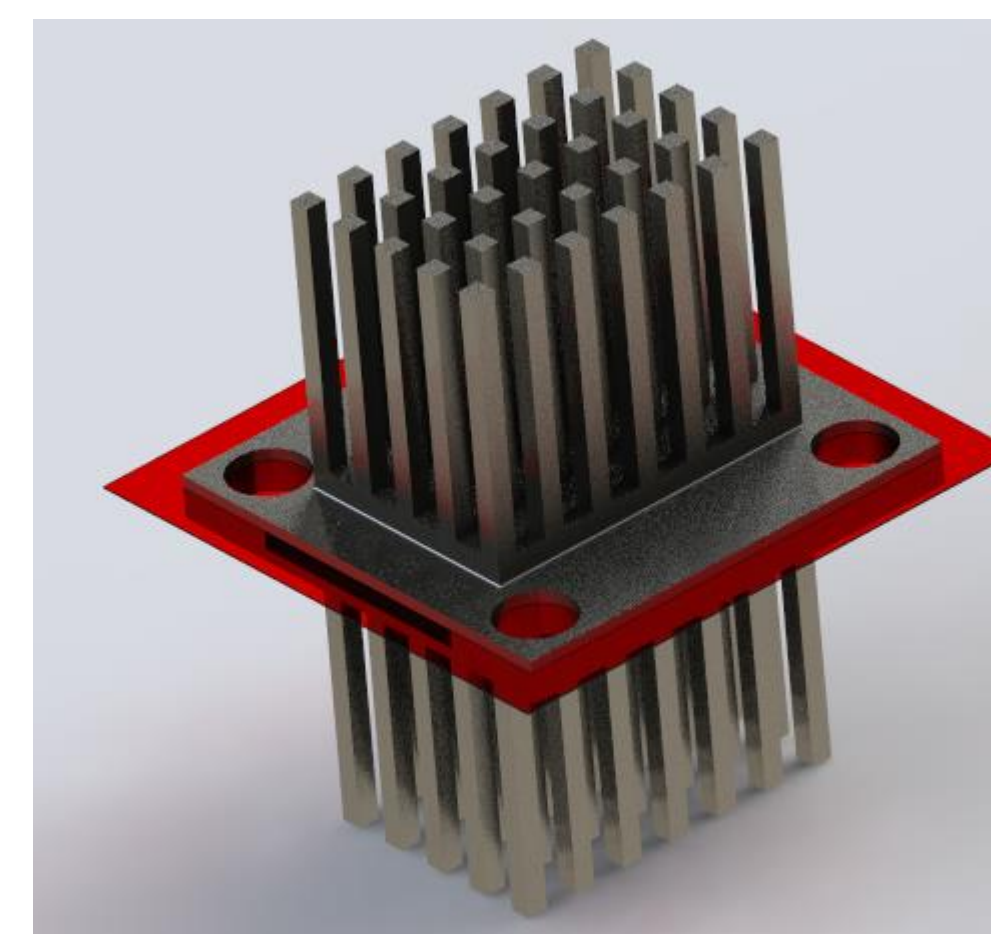


Objective:

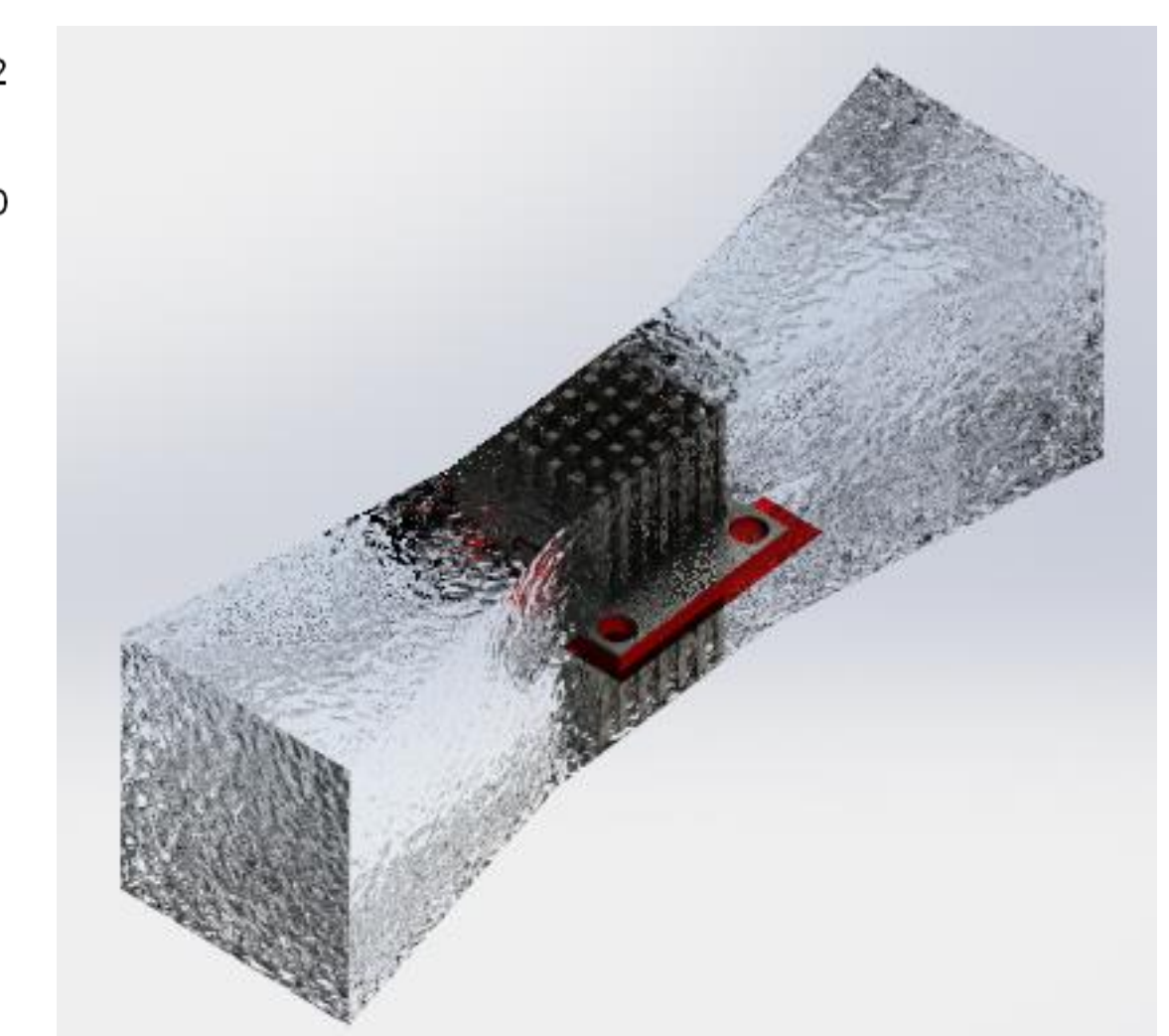
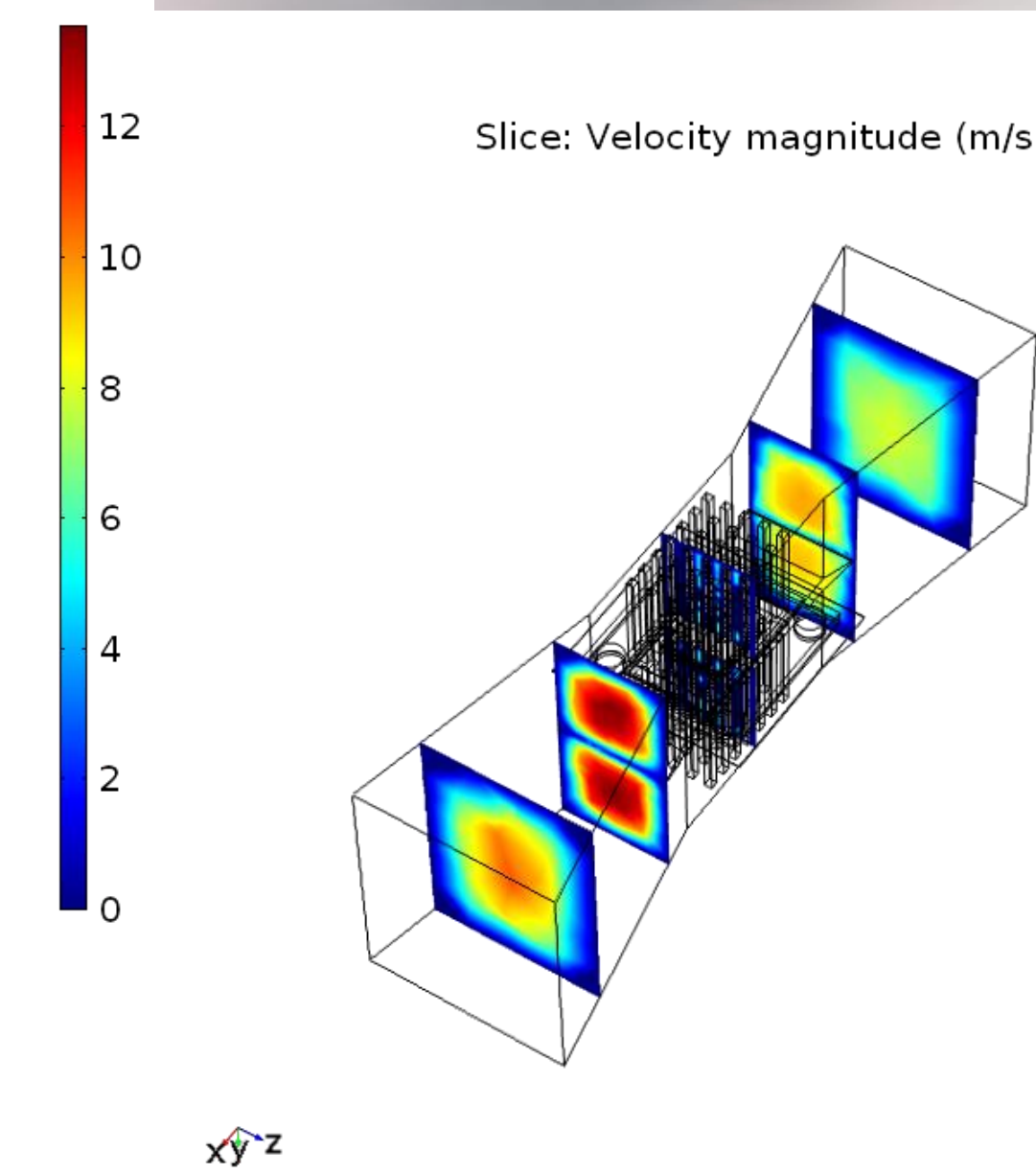
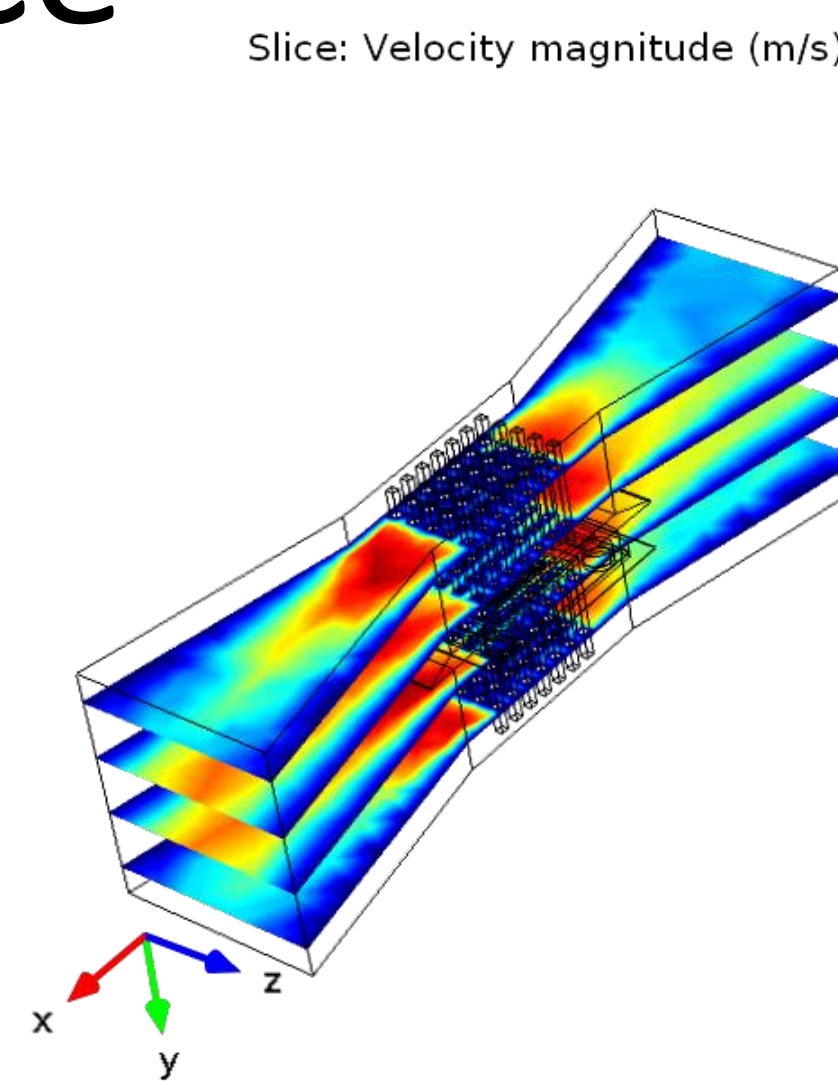
- Phase-leg or integrated 3-ph module
 - Design for Electric Vehicle applications
- Double-sided, air-cooled
- Thermal-mechanical optimization
- Lowest power loop parasitic inductance
- Low gate drive loop parasitic inductance



POWER AMERICA

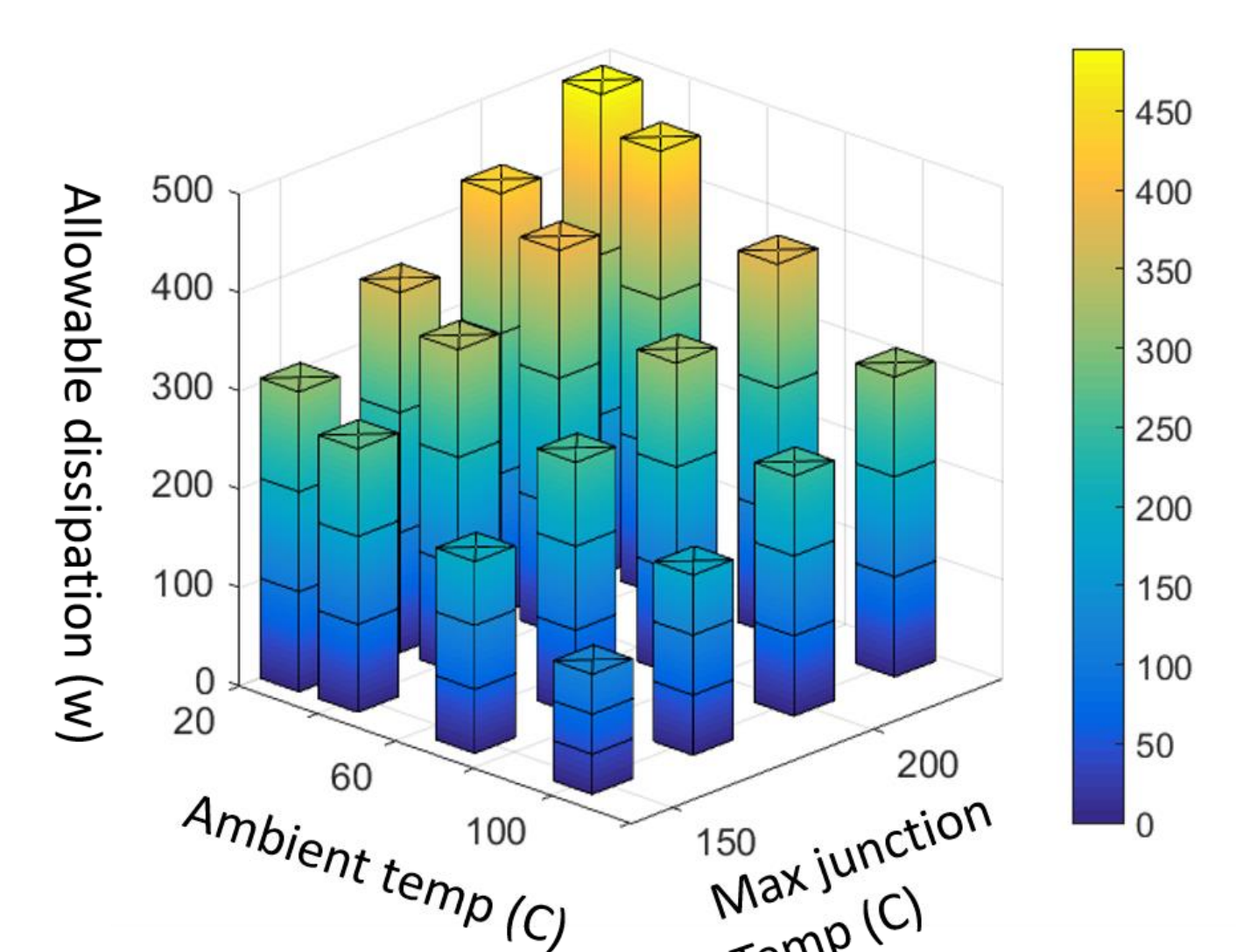
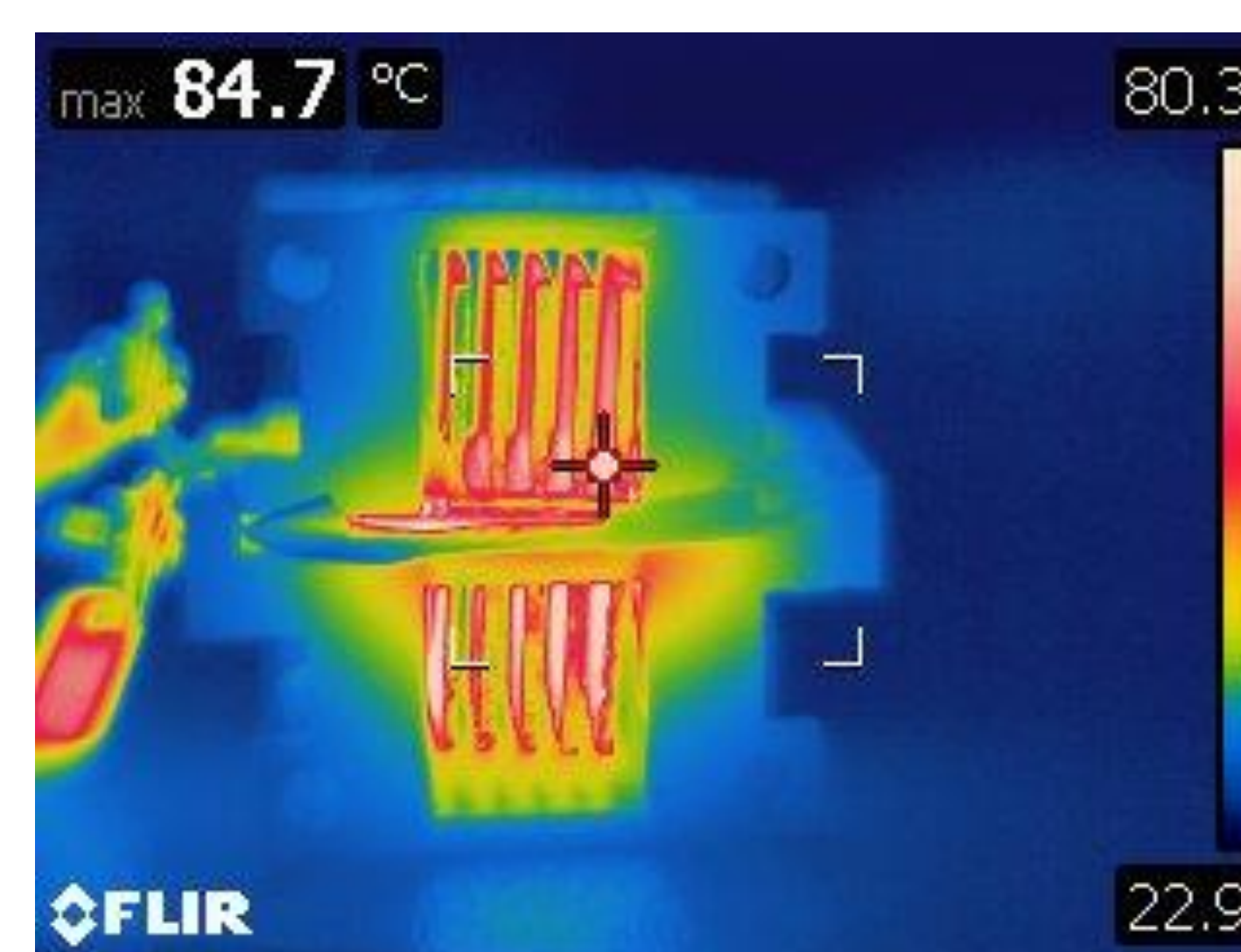
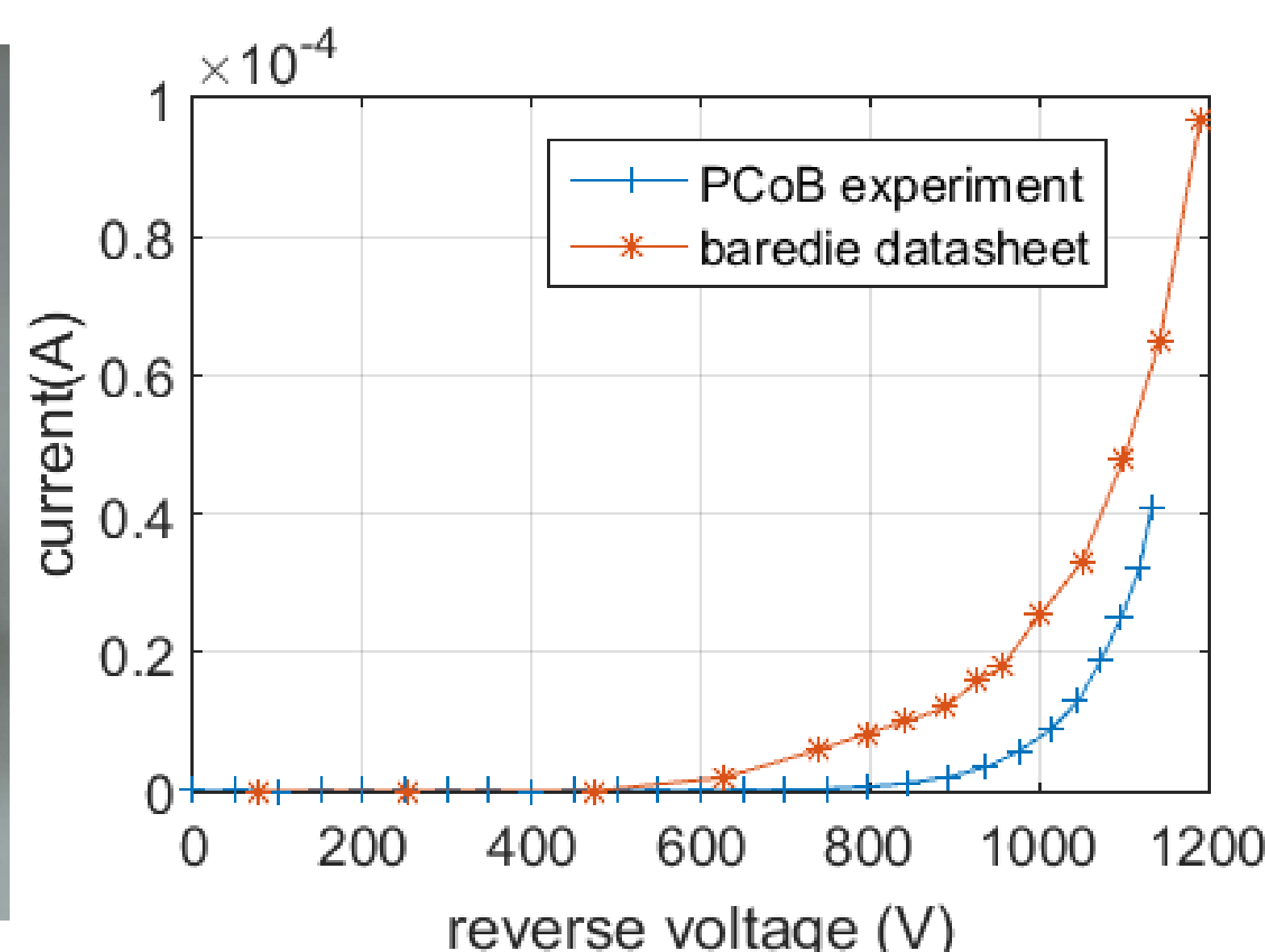
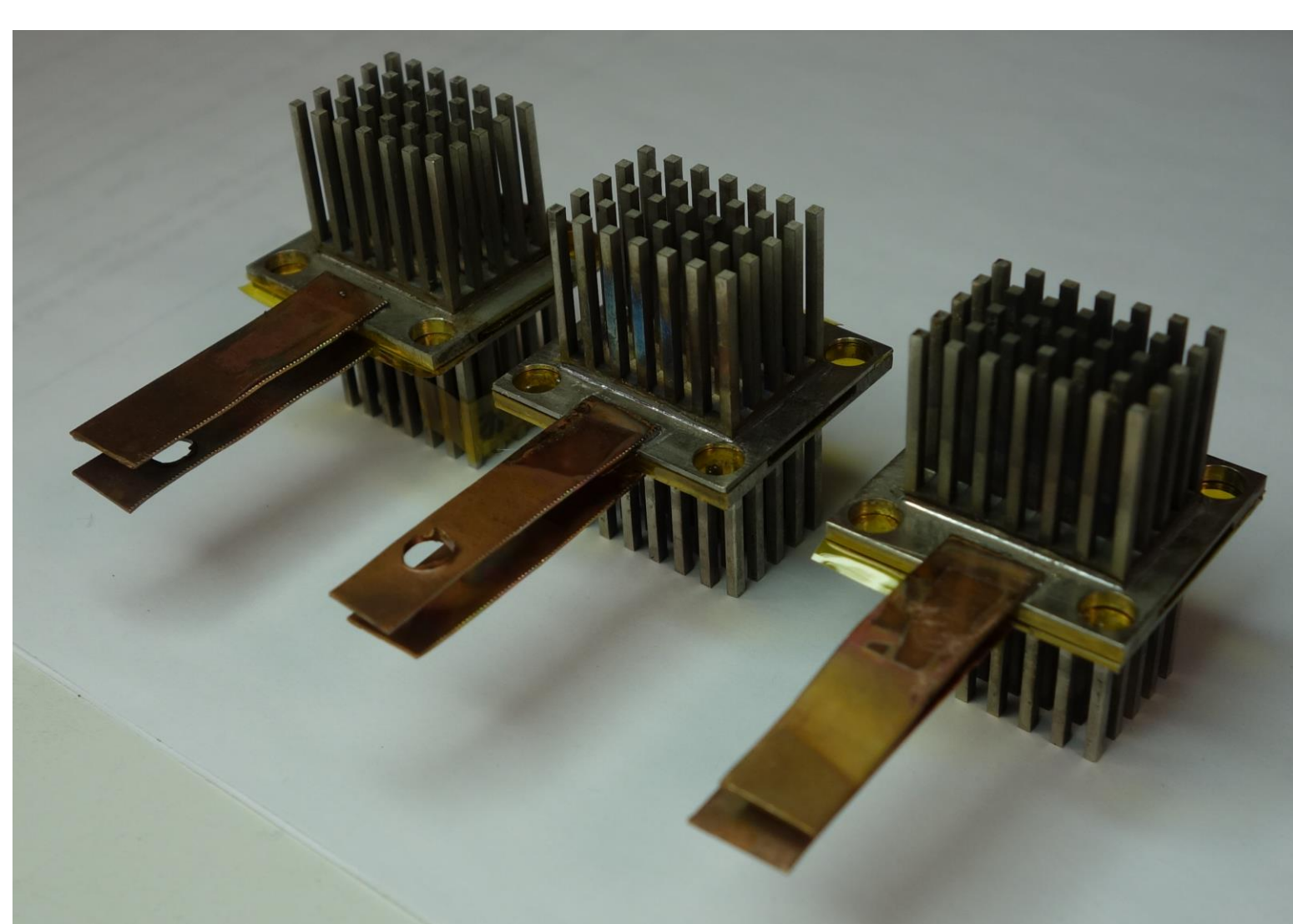
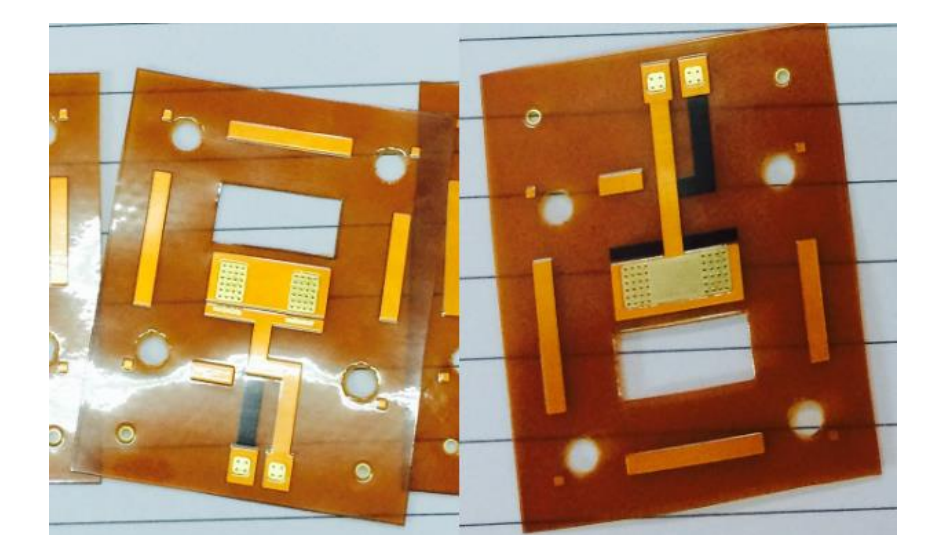
Technical Approach:

- New multifunction package topology
- Direct chip between heavy Cu
- Multi-physics FEA design and analysis



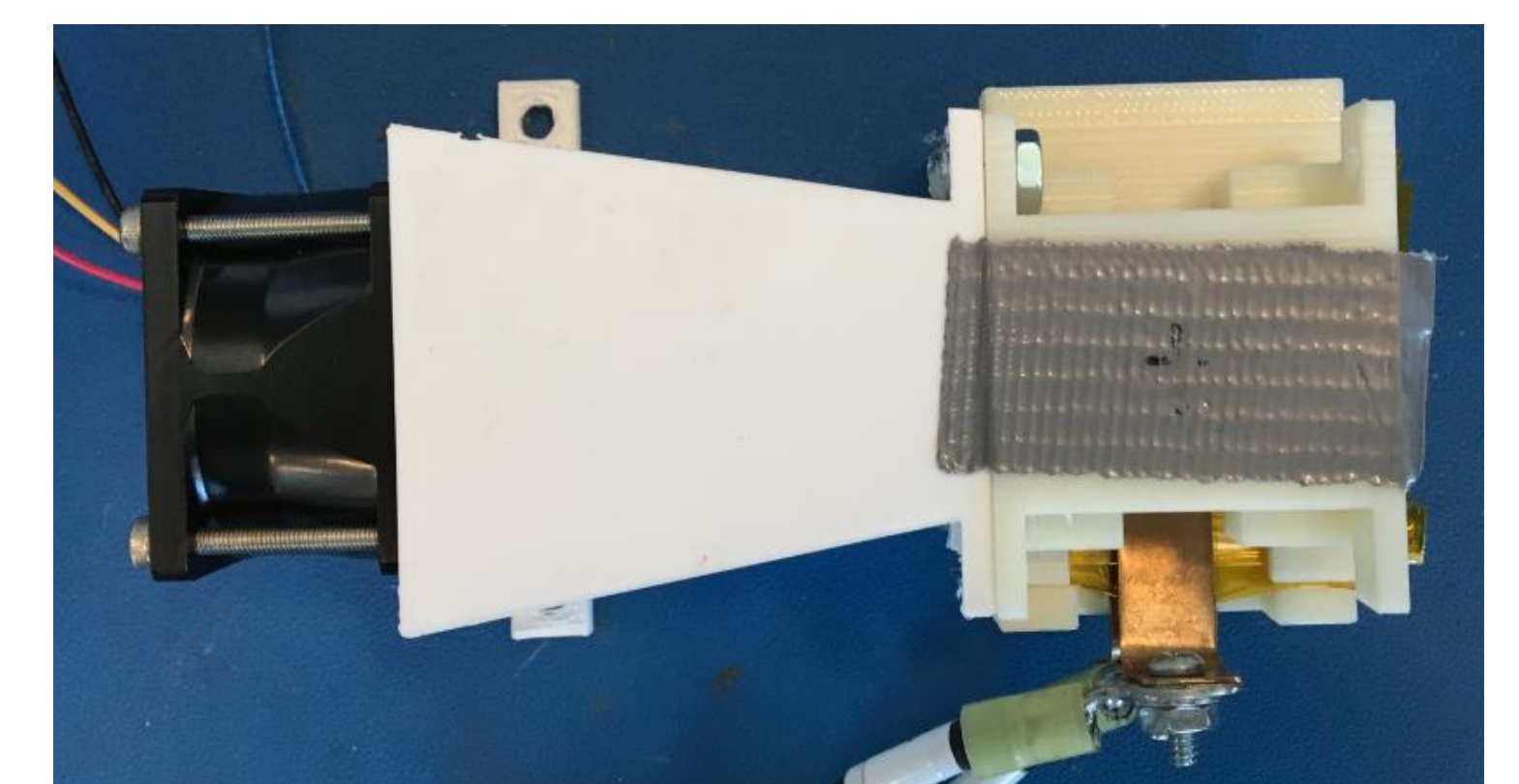
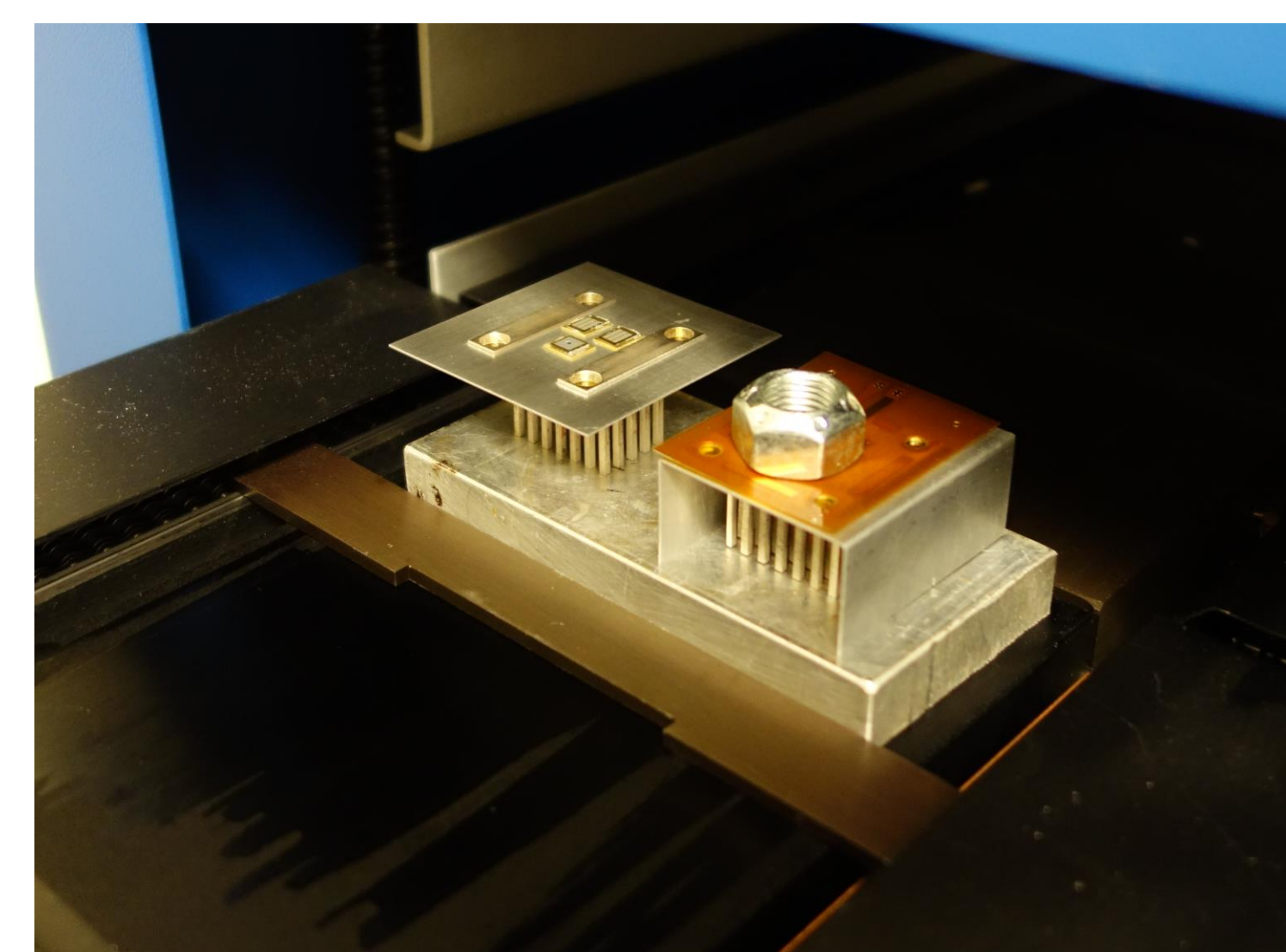
Accomplishments:

- Air-Cooled performance surpasses non-dielectric liquid cooling
- PCoB single switch platform was designed, analyzed and fabricated
- Process development for substrate fabrication, die attach & assembly
- Trial version PCoB SiC diode module was fabricated and tested



Next Steps:

- Topside contact material optimization
- Full power Pulse testing
- Housing bonding and molding
- SiC MOSFET/DIODE integration



Potential Impact:

- Benchmarking highest performance air-cooled power module
- Ultra-low parasitic design for WBG device compatibility
- High density, high performance, low cost EV converter/inverter solution