

# PWB Failure Analysis

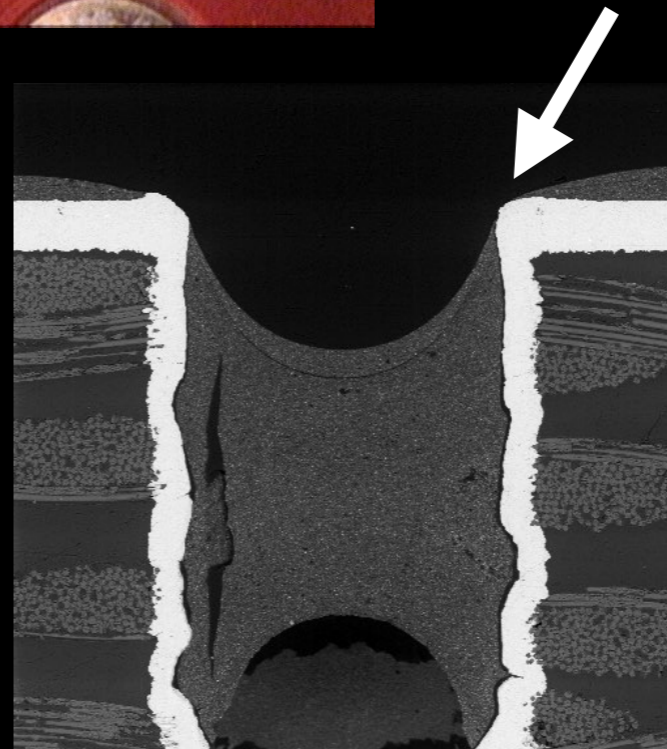
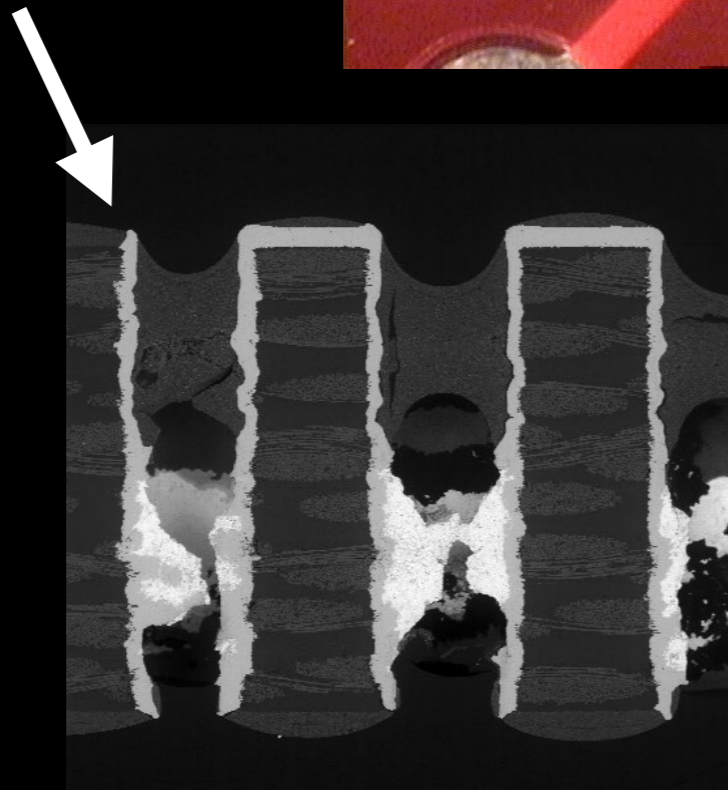
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# Hi-Pot Failure

Exposed copper at the knees of the plated-through-hole vias providing sites for arc over failure

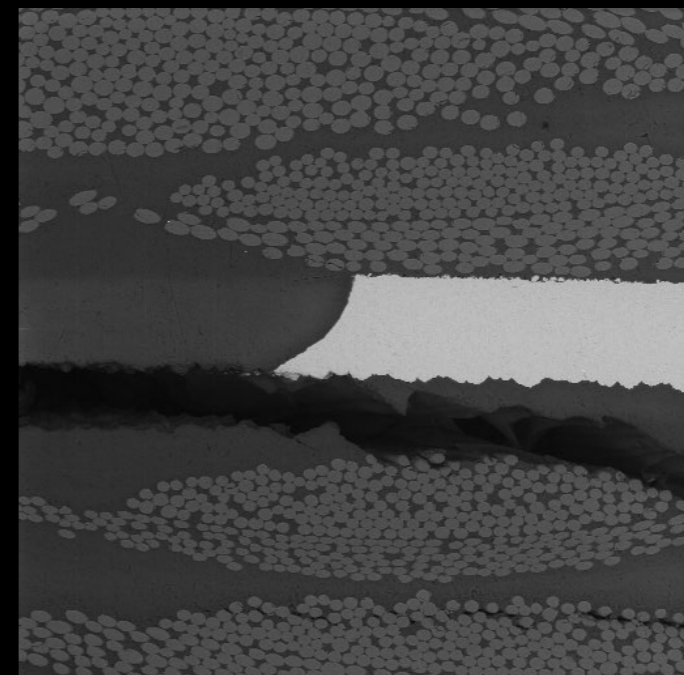
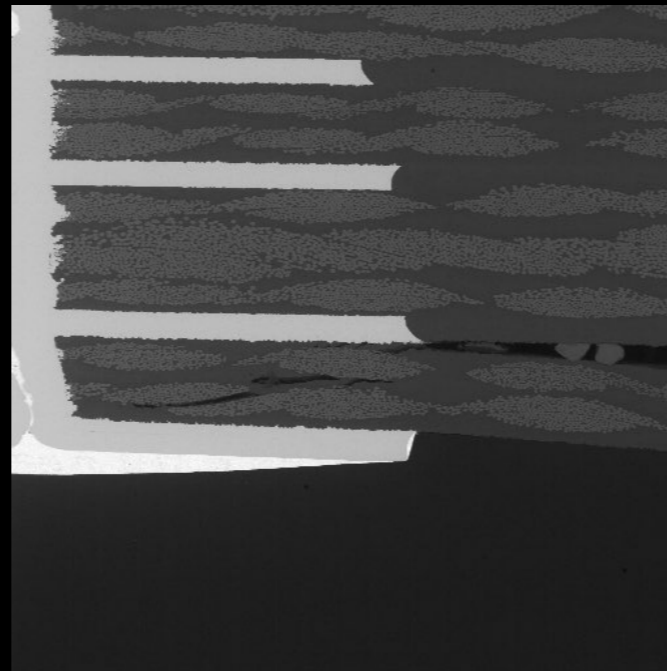
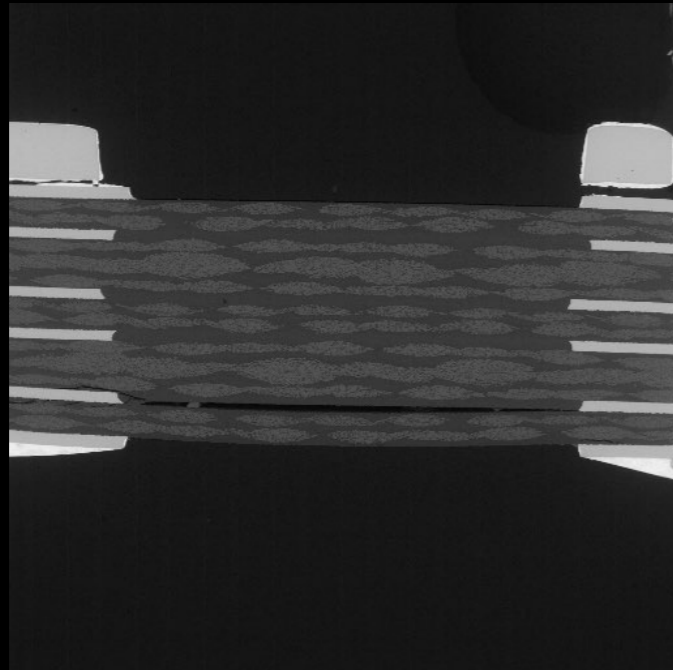


Drill breakout that creates sharp exposed copper features when combined with the knee coverage problem

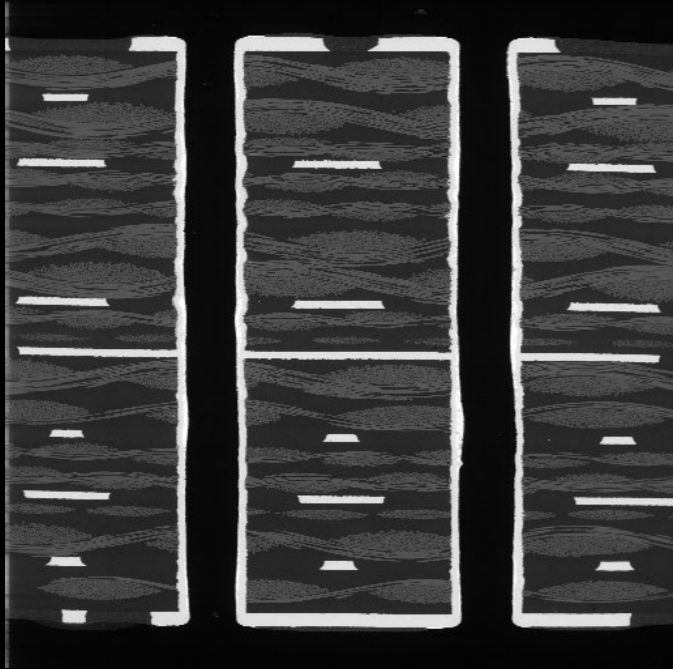


# Lamination Failure

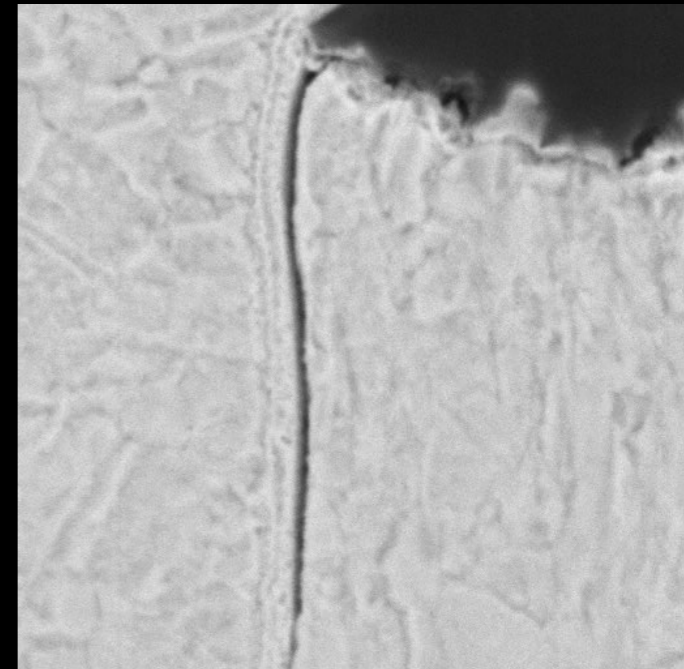
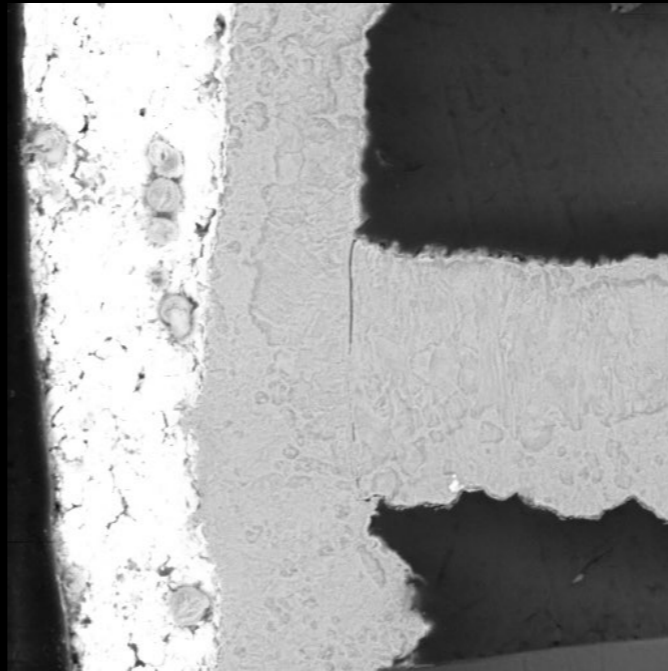
**Delamination occurred as a result of a contaminant (e.g. hydrocarbon oil) trapped at the interface between the B-stage and the copper-clad laminate during PWB lay-up.**



# Inner Layer Separation

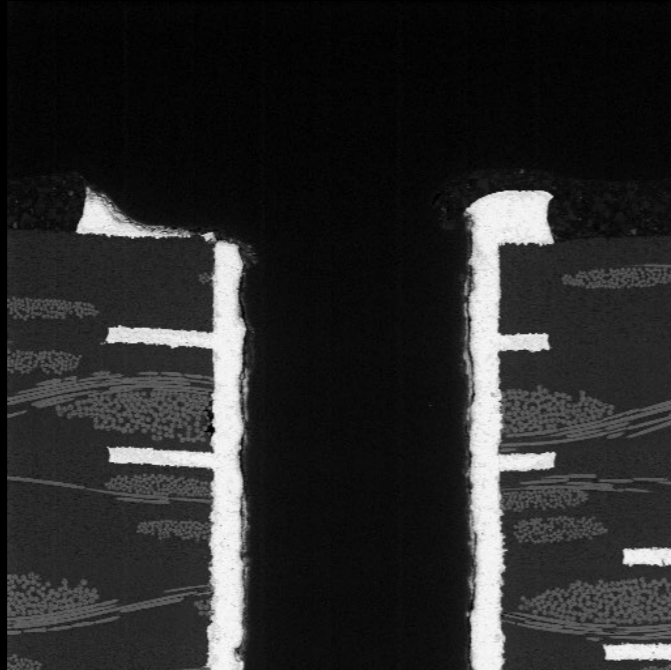


**Causes internal opens**

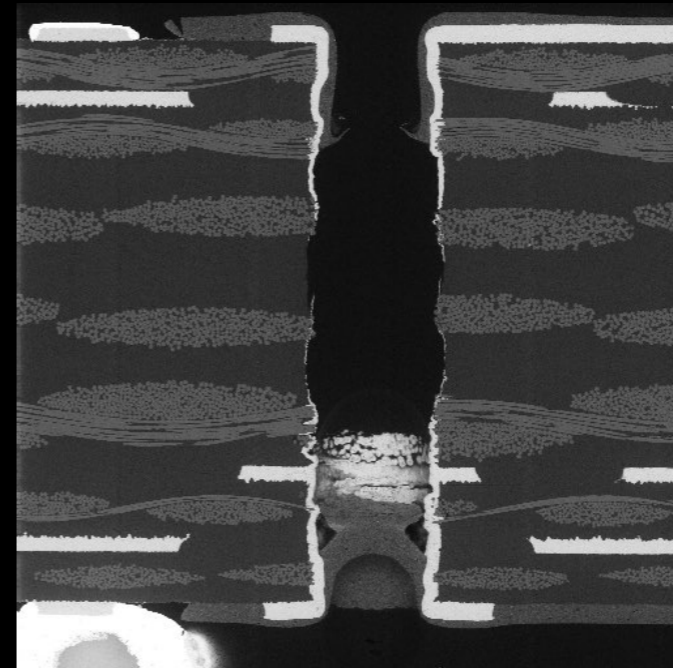


**Inadequate de-smear during fab**

# Corrosion Failures

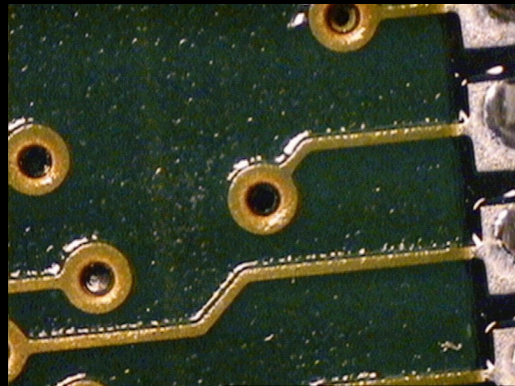


Activated flux was left on this PTH

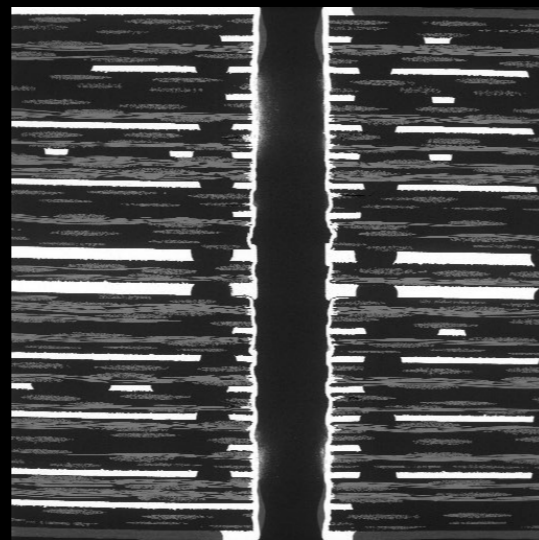


Activated flux was left in this PTH

# PTH Cu-plating Failure

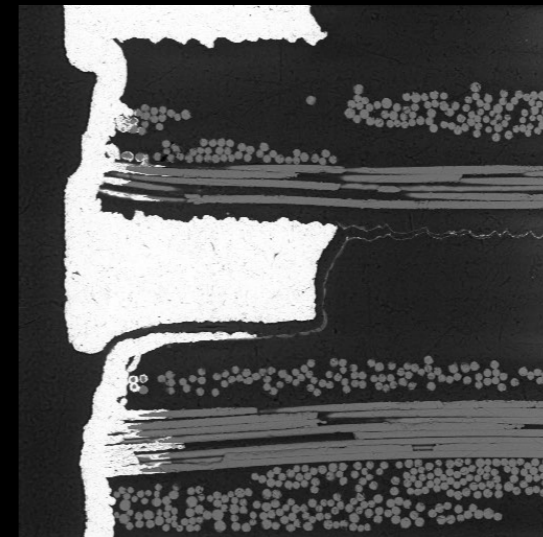


Plated-through-hole



PTH copper too thin

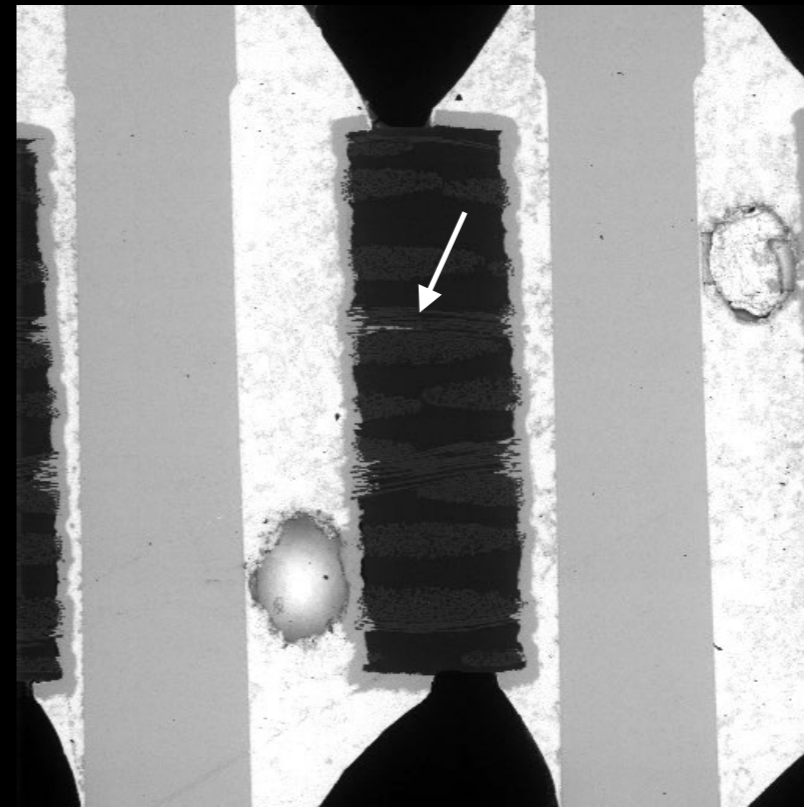
Open PTH caused by thin copper, poor drilled-hole quality, and Z-axis thermal expansion



# Conductive Anodic Filament Failure



Adjacent leads shorted

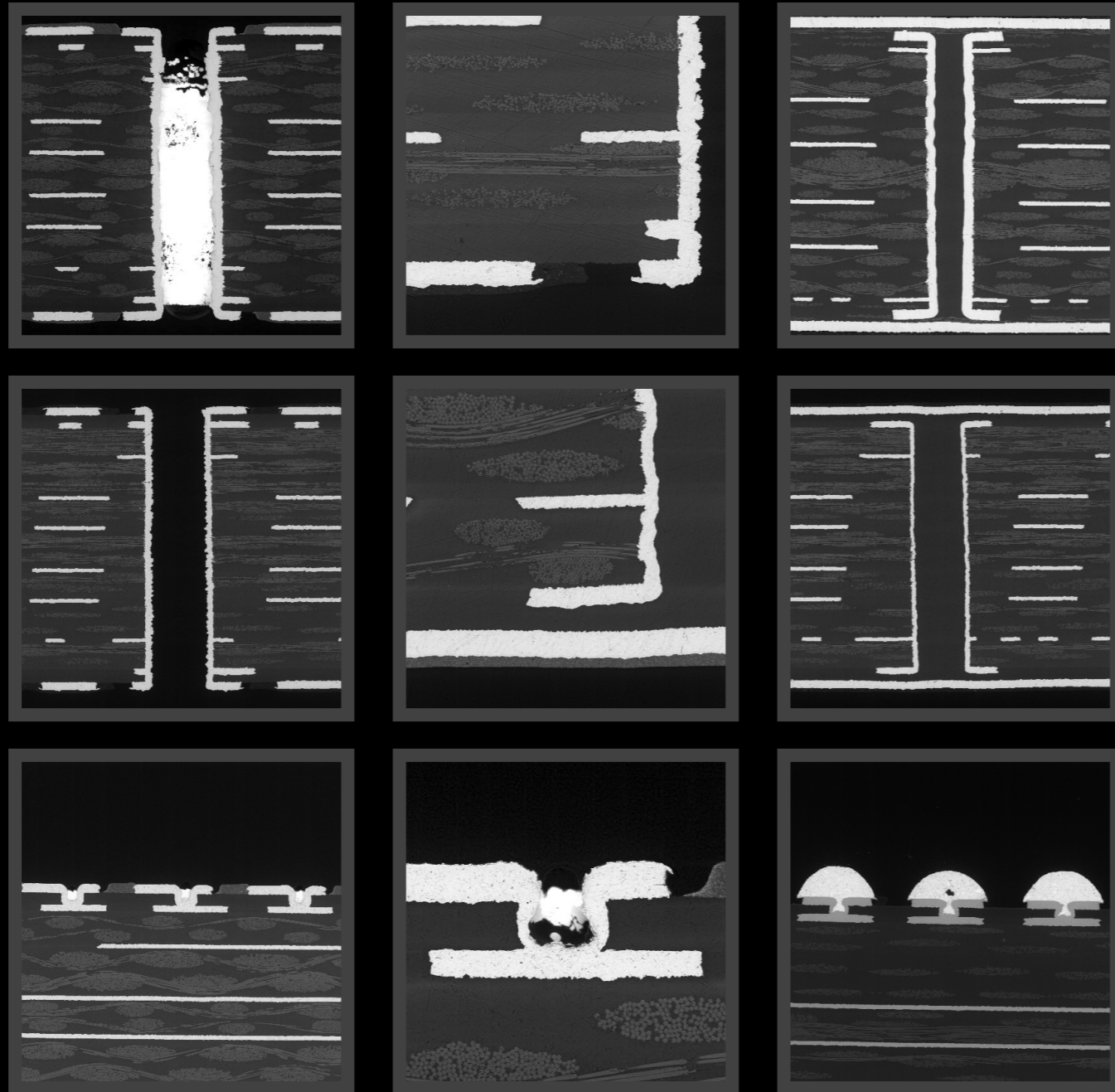


Nearby isolation space shows copper migration

# Avoidance



# Construction Analysis



- Conductor layer thickness
- Dielectric layer thickness
- PTH copper thickness
- Layer-to-layer registration
- Micro-via quality
- PTH fill quality
- Drilled-hole quality

**Ed Hare, PhD**

**VP SEM Lab, Inc.**

**[www.semlab.com](http://www.semlab.com)**

**[ehare@semlab.com](mailto:ehare@semlab.com)**

**425.335.4400**