

Abstract Submitted  
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**Polyurethane spray coating of aluminum wire bonds to prevent corrosion and suppress resonant oscillations** MATTHEW KURTH, JOSEPH IZEN, University of Texas at Dallas, GEORGE BOYD, University of Oklahoma — Unencapsulated aluminum wedge wire bonds are common in particle-physics pixel and strip detectors. Industry-favored bulk encapsulation is eschewed due to the range of operating temperatures and radiation. Wire bond failures are a persistent, source of tracking detector failure. Unencapsulated bonds are vulnerable to condensation-induced corrosion, particularly when halides are present. Oscillations from periodic Lorenz forces are documented as another source of wire bond failure. The investigation included spray application of polyurethane coatings, performance of polyurethane-coated wire bonds after irradiation and climate chamber exposure, and resonant properties of polyurethane-coated wire bonds and their resistance to periodic Lorenz force.

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