

# Wire Bonding to Niobium for Quantum Computing Applications

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Many of the quantum computing applications use niobium (Nb) as it is a superconducting metal. There are challenges to wire bonding to Nb and other similar metals due to their grain structure. This challenge would hold true for wedge bonding or ball bonding. Most wire bondable metals are face-centered-cubic (fcc) but Nb is body-centered-cubic (bcc). Most wire bond process windows could be developed based on the voltage, force, and time. When dealing with Nb, one also needs to include the transducer frequency into consideration. This paper will outline the work Hesse Mechatronics and Auburn University have done to address the challenge of bonding to a different structured metal.