

TRACK 5: RSAF INDIGENOUS PROJECTS

“APPLICATION OF COLD SPRAY AS A REPAIR METHOD FOR AIRCRAFT STRUTURES”

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ABSTRACT

Cold spray is a relatively low-temperature metal deposition process that has been used to build-up metal for repair of high-value components in various industry sectors. In this case, cold spray was proposed as a repair process for lightning-strike damage on an aircraft winglet, by depositing and building-up Aluminium 7075 on the damaged winglet using manual cold spray. The cold-sprayed 7075 material was characterized using several test methods; tensile adhesive bond strength test, tensile test, microstructure analysis and bending test.

BIOGRAPHY OF SPEAKER



ME4 Kelvin Bi Jiawei is an Air Force Engineer by vocation in the Republic of Singapore Air Force, as a structures engineer for the F-15SG and CH-47 Chinook aircraft. He holds a Bachelor of Engineering in Mechanical Engineering (Honours) from Nanyang Technological University, where he had worked on the effects of the working gas on the wear and corrosion resistances of cold sprayed Ti-6Al-4V coatings. His work was subsequently published in 2016 by the journal Surface and Coatings Technology. He is currently working on the application and verification of cold spray repairs on aircraft components.



Kelvin Loke is a Business Development & Sales Manager in ST Engineering Land Systems. He graduated from Nanyang Technological University in 2009 and holds a Bachelor with Honours in Materials Science & Engineering. He has more than 10 years of experience in Engineering and R&D of Materials & Special Processes, specialising in Thermal Spray, Cold Spray, Additive Manufacturing and related applications. He is currently pursuing his PhD in Engineering with SUSS with his thesis on the Cold Spray process.