

Capability and current status of wire based directed energy deposition additive manufacture

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Abstract

Additive manufacture of metre scale engineering structural parts is currently of great interest to industry. The most realistic processes for these applications use Wire based Additive Manufacture (WAM) which shows the highest level of business benefit, large build rates and envelopes.

These processes have been investigated and developed at Cranfield University over the last 12 years and many large parts have now been produced including the world's largest part – a 6 metre long 300kg aluminium spar.

This talk will present the different processes with examples of systems, capabilities and associated material properties. Industrial case studies of large scale engineering structures made by WAM to date will be shown. Finally new developments expected through our recently awarded EPSRC NEWAM programme grant will be highlighted.

All staff and students welcome to attend.

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Short Biography

Stewart Williams spent five years at Edinburgh Instruments building lasers and laser systems. In 1987 he moved to the Advanced Technology Centre of BAE Systems where he ran a group whose main area of research was laser processing of aerospace materials. Currently he is Director of the Welding Engineering and Laser Processing Centre (WELPC) at Cranfield University. The main areas of research at the WELPC are additive manufacturing, laser processing including welding and surface treatments, and residual stress control/management.

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