

High-speed in situ metrology for laser-based advanced manufacturing

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Abstract: The world at the focus of an intense laser beam (kW or greater) can be a complicated place, but the quality of the cut, the stability of the weld or the final material properties of the additive manufactured part directly rely on this highly dynamic process. One approach would be to search the complex parameter space and the resulting part final characteristics. Instead we have developed inline coherent imaging to directly monitor the rapidly changing morphology during processing, to provide direct quality assurance at greater than 300kHz rates, and even closed-loop feedback to drive the process to the desired output. This technology, now commercialized, is being exploited in automotive and aerospace, with potential impact in healthcare.

No Summary Provided