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SPI Lasers

(“SPI” or “the Company”)

Cranfield University joins forces with SPI Lasers for NEWAM project

The NEWAM (New Wire Additive Manufacturing) project builds on and exploits the UK's substantial lead in wire-based directed energy deposition (DED) technology, with a vision to transform large-area metal additive manufacture, by pioneering new high build-rate wire based processes with greater precision of shape and microstructure.

To date, most of the work in wire based directed energy deposition has been carried out at Cranfield University (one of four universities (Cranfield U., U. of Manchester, Strathclyde U., and Coventry U.) that have joined forces to deliver this ambitious research program over a five year period.), who’s research over the last 10 years has proven the capability to make large titanium parts in a timely manner (weeks instead of months) and with much reduced cost (up to 70% cheaper than machining from solid), resulting in a tremendous industry pull.

SPI Lasers are supporting Cranfield University in this project with their first placement of a 10kW QUBE CW Fiber Laser. The flexibility of the laser for use in the project is enhanced through the use of an integrated 4-way beam switch unit and by having beam delivery fibers of 150µm, 200µm and 400µm core diameter. To further enhance the capability of the laser processing cell at Cranfield University, two further QUBE Cabinet lasers, each of 6kW output power and with 100µm delivery fibres were also part of this project.

Professor Stewart Williams is the Principle Investigator on the NEWAM Program Grant and commented ‘We are delighted to continue our long established collaboration with SPI Lasers through the NEWAM project. NEWAM is fundamentally based around high power fibre lasers so the involvement of SPI Lasers is a very important contribution towards the success of the research program.’

Dr Mark Greenwood is CEO of SPI Lasers, and commented “SPI Lasers and Cranfield University have worked together on many development projects over the years, and we are very pleased to continue that association as we place our first 10kW QUBE CW Fiber Laser at Cranfield as part of the NEWAM project. We look forward to seeing how the results shape the manufacturing strategies of the future”.

To find out more about SPI Lasers and the fiber lasers they manufacture visit www.spilasers.com

To find out more about Cranfield University and Wire & Arc Additive Manufacturing, visit: www.cranfield.ac.uk www.waammat.com

About SPI Lasers

SPI Lasers, a wholly owned subsidiary of the TRUMPF Group, is a leading designer and manufacturer of Fiber Lasers for use in materials processing applications in a wide range of industries. Our technology solves manufacturing problems; it moves the boundaries of what is possible, making good products better and enabling new designs. Headquartered in Southampton, United Kingdom, SPI Lasers has been operating since 2000. SPI Lasers sells its products globally, and has its major business operations, including research and development, and manufacturing, in the United Kingdom, with additional sales and customer support locations in Asia and North America. For more information please visit www.spilasers.com or for information on TRUMPF www.trumpf.com

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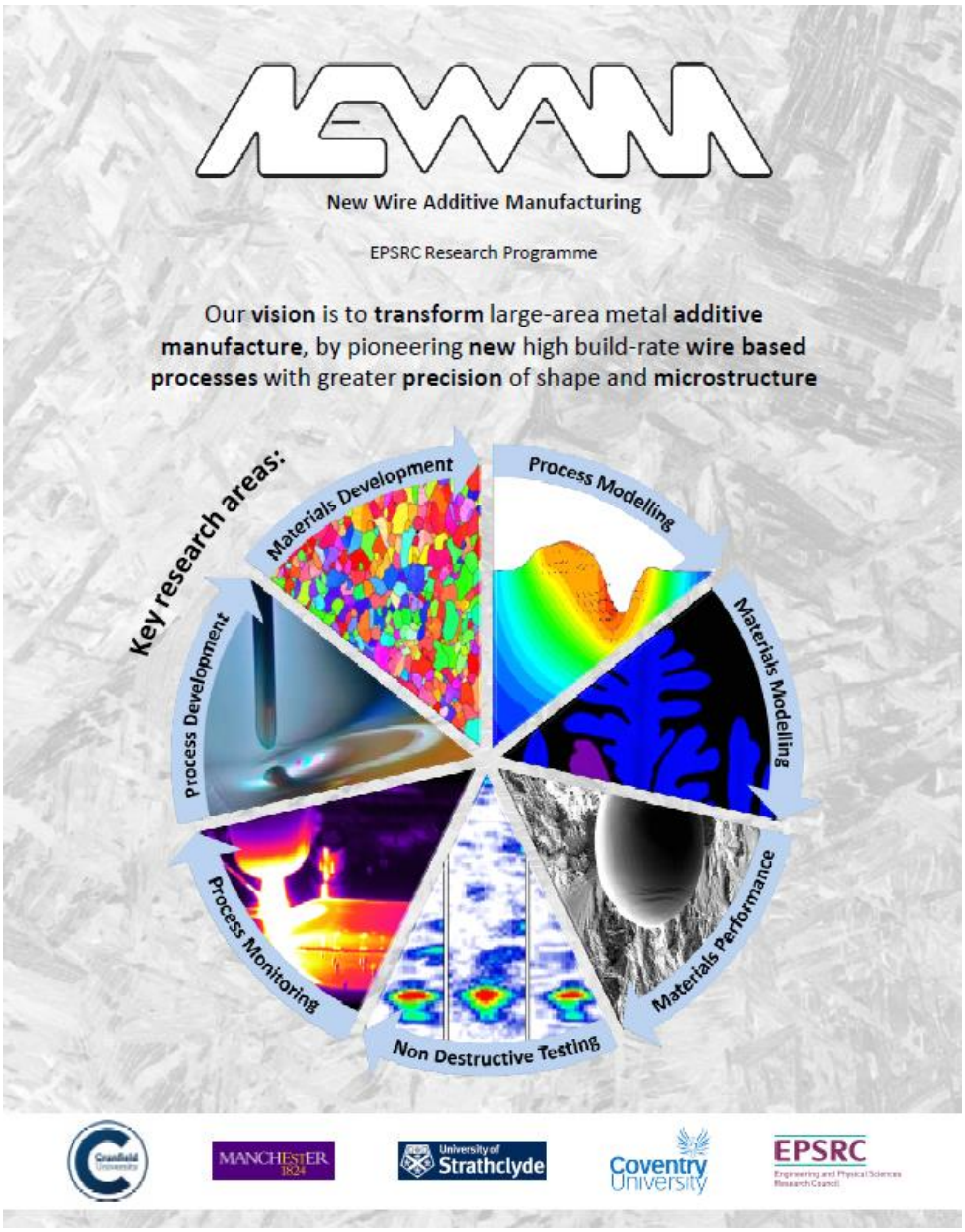

Major research challenges:

1. To develop new **high build-rate** precision metal wire-based **AM processes** capable of **net-shape** deposition with little or no finishing step required, at **low cost** and with **homogeneous microstructure** and **high performance** properties.

2. Building **robust physics-based process** and **materials models** for detailed **process understanding**, rapid **process development** and provision of algorithms for **in-process microstructure** and **shape control.**

3. To **ensure** as-built **structural integrity,** through process-independent physics-based **quality control** and **assurance,** ultimately enabling **low-cost** and **timely qualification.**

4. Design of **feedstock materials** and **alloys,** tailored to the **new** and existing **deposition processes,** giving **performance equivalent** to, or **better** than the currently used **wrought alloys.**

Impact:

- **UK industry**: More internationally competitive
- Significant reduced manufacturing costs and **lead times** and higher **productivity**
- Cost **saving** of up to 70% for high value components
- Generation and retention of **jobs** in key industry sectors
- Major **environmental benefits**: Reduced energy and material consumption

Beneficiaries:

- **UK industry**: End users and supply chain for AM
- Main industry sectors: aerospace, defence, energy and construction
- Supply chain: AM equipment, services and feedstock materials
- Society: UK economy
- Environment
- People: Training and jobs
- Knowledge: Multidisciplinary research

Working with us:

NEWAM

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