Surface Engineering for Advanced Materials

Overview

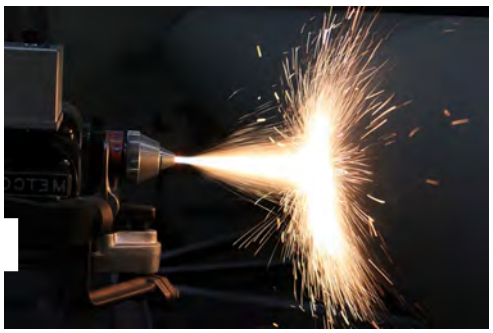
SEAM trains early career researchers in an industrial context. Surface engineering is a core need for all manufacturing sectors that controls the efficiency, productivity and sustainability of Australian industry. The spectrum of applications ranges from thin films to thick coatings and additive layered materials.

Benefit and Impact Statement

The Centre provides pathways for job creation and a high quality work force in manufacturing. The outcomes of the applied research and IP creation promote new commercial ventures for entrepreneurs. Participants of the Centre, on exposure to many engineering technologies, benefit by mitigating risk to manufacture improved products by the application of surface engineering.

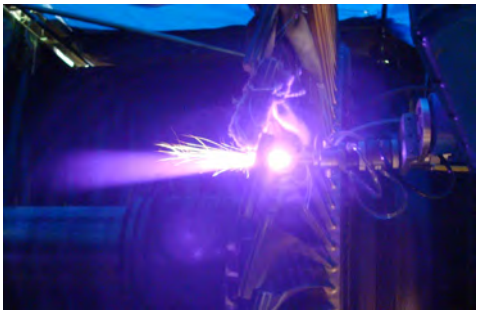
A Unique Centre with an Exceptional Mission

SEAM is the first Training Centre of its kind with a specific focus on surface engineering across (i) thin films less than 10µm, (ii) coatings less than 250µm, or (iii) overlays up to tens of millimeters thick. Additive manufacturing is included since this is, fundamentally, a layer-by-layer material deposition process.



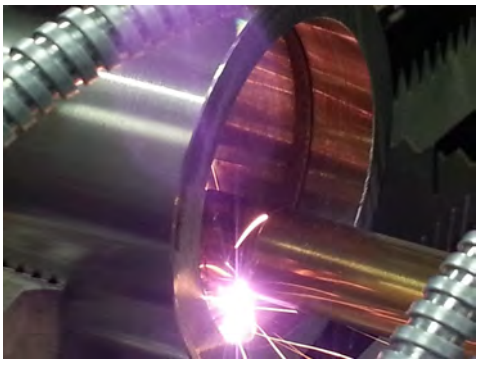
Thirteen Projects Under Three Themes

THEME 1 on "Nanoscale surface modifications and thin films"
Employed in applications ranging from films for bacterial and infection control, to microelectronics, and hard coatings for wear resistant machine components.



THEME 2 on "Thick coatings manufactured by laser and thermal spray technologies"
Used in heavy industries, mining and transportation for repair and remanufacturing of components.

THEME 3 on "Additive Manufacturing: AM"
AM where a layer-by-layer deposition process creates a new surface, including laser-assisted deposition and cold spray technology, allowing part fabrication with difficult to process metals; e.g. titanium alloy.



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DISTINGUISHING FEATURES
- A cohort of PhDs (20) and Postdoctoral Fellows (9)
- 14 Partner Organisations
- 17 Other Organisations, professional bodies and leading research organisations in a supporting network

Australian Government
Australian Research Council