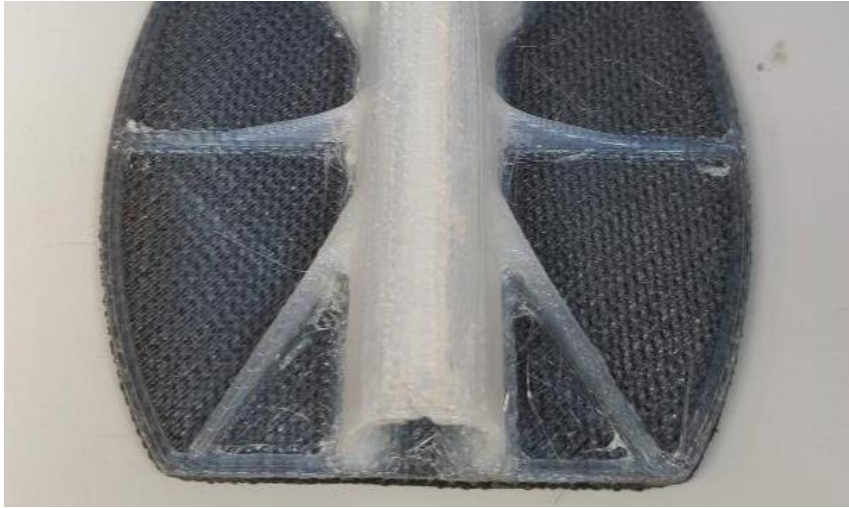




## 3D Desktop Composite Process

*- System for joining 3D printed polymer/composite layers to the surface of fibre composite materials*



### Opportunity:

Composite overmoulding is a process of moulding polymer features to the surface of composite materials using an injection moulding system. These specialised systems are costly and require a bespoke steel/aluminium mould be made for each design.

An invention by University College Dublin researchers comprising a novel method of joining 3D printed polymer/composite layers to the surface of fibre composite materials, resulting in a new process coined, 'over-printing'.

### Technology Overview:

The over-printing system can print various polymers directly onto the surface of a composite panel. It requires no moulds and can be cost effective for a single production run. In addition, this process can use multiple polymers simultaneously to maximise the performance of the part, whereas conventional moulding is limited to a single polymer per moulding cycle. The bond strengths have been shown to reach 6Mpa in adhesion testing (ASTM 4541), and up to 44Mpa in interlaminar shear strength (ASTM 2344).

### Key Features/Advantages:

- Enables single batch production at lower cost than conventional overmoulding techniques.
- Does not require injection moulding equipment.
- Allows rapid prototyping and manufacturing without the need for moulds.
- Can design the composite/3D printed components to take advantage of their combined materials properties.

### Value Proposition:

Low-cost way to build small scale batches of high-performance materials, with bond strength that match industry norms.

### Markets:

Aerospace and automotive R&D design centers.

### Lead Inventors:

Dr Andrew Dickson and Professor Denis Dowling, UCD School of Mechanical and Materials Engineering.

### IP Status/Publication:

Trade-secret.



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