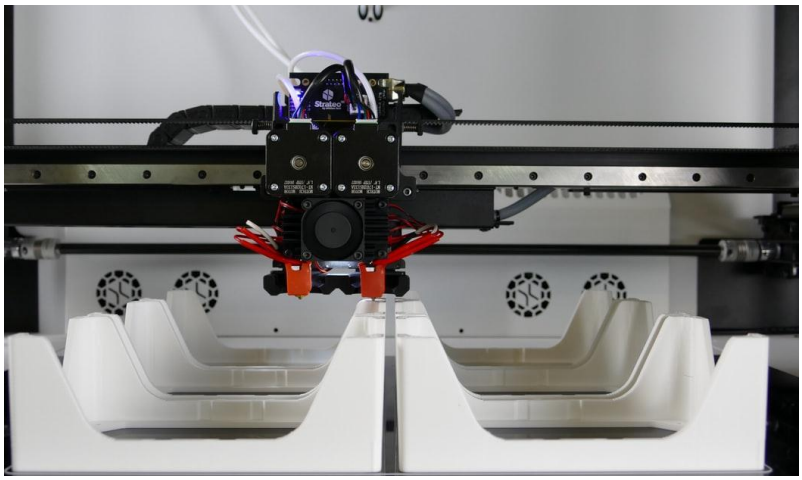
NovaUCD

Technology Licensing Opportunity

Hybrid Polishing

Environmentally friendly method to polish inner surface of parts manufactured by Selective Laser Melting



Opportunity:

SLM while enabling the manufacture of complex design presents a limitation in terms of inner surface quality. Surface finish is an important factor relating to the application of a part, influencing multiple functional characteristics including but not limited to biological response, mechanical properties, fluid dynamics and heat transfer.

Traditional post-processing techniques, such as milling and grinding, are widely used for improving the surface quality of outer surfaces on parts produced by additive manufacturing. However, such conventional methods are restricted by the physical size of the tools used, meaning it can be difficult to achieve effective surface improvement for additively manufactured parts having internal structure.

Technology Overview:

The challenges of polishing internal structures on SLM products have been overcome by a hybrid polishing method developed by researchers at University College Dublin. The method combines both electrochemical and abrasive fluid polishing to allow internal rough surfaces to be polished using a fast and environmentally-friendly system.

Key Features/Advantages:

- Improves the efficiency of post-treatment processes for 3D printed parts with internal structures.
- A fast and environmentally friendly technology that enables internal polishing of 3D printed parts.
- The design of the system enables the development of new hybrid polishing methods for internal structures on 3D printed parts.
- The system can monitor the polishing process (e.g., pressure, flow rate, temperature, current density, potential, etc.) during polishing.

FUNDERS: Science Foundation Ireland sfi For what's next

Value Proposition:
A method to polish complex internal structure of parts manufactured by SLM .

Markets:
Biomedical, aerospace, automotive, advanced engineering.

Lead Inventor:
Professor Fengzhou Fang, UCD School of Mechanical and Materials Engineering.

IP Status/Publication:
Patented 2021 No. 2107777.1

Contact:
Dr Hugh Hayden
Technology Transfer Office
Knowledge Transfer
t: + 353 1 716 3725
e: hugh.hayden@ucd.ie