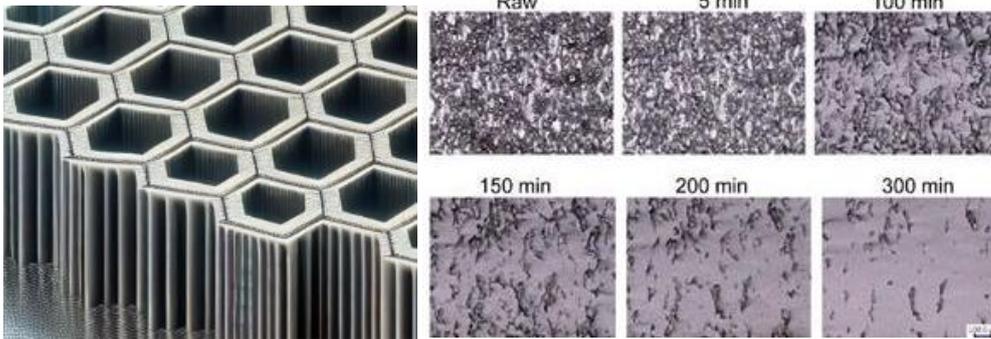


Polishing device for internal structures of metal additive parts

-Novel hybrid polishing methods for complex internal structures.



Opportunity

Additive manufacturing using selective laser melting (SLM) is highly attractive for producing parts with intricate internal structures, enabling the generation of complex internal geometries compared to other technologies.

However, SLM faces a significant limitation in poor internal surface quality in final product. Current post-processing techniques, such as milling and grinding, are not suitable for improving the surfaces of internal structures in additively manufactured parts.

Technology Overview

Hybrid Polishing (Hypol) enables controlled polishing of complex internal parts and is particularly suited for batch manufacturing. Hypol utilizes a hybrid electrochemical and abrasive fluid polishing technique, employing a cathode within a flow of polishing fluid. This fluid contains at least one electrolyte and one abrasive medium, allowing for the comprehensive polishing of complex internal parts. The system monitors the polishing process in real-time, tracking parameters such as pressure, flow rate, temperature, current density, and potential to ensure full control over the polishing process.

Key Features/Advantages:

- Can polish complex internal structure
- Uses environmentally friendly chemicals
- In-line monitoring
- Adaptable system for specific parts and users end requirements

Value Proposition:

Polishing of internal structures of various metals. A highly controllable process which enables measurable polishing technology.

Markets:

Applicable for automotive, aerospace, medical and moulding industries

Lead Inventors:

Professor Fengzhou Fang
PROFESSOR OF PRECISION
MANUFACTURING

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Contact:

Hugh Hayden
Knowledge Transfer
t: + 353 1 716 3725
e: Hugh.hayden@ucd.ie