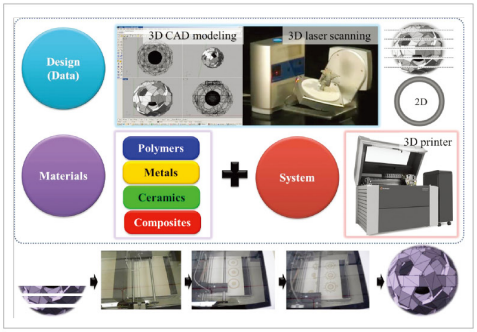
세라믹 3D프린팅 기술

Ceramic 3D Printing Technologies

TRL5

기술내용

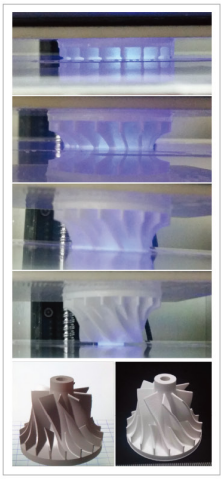
- 세라믹 소재 맞춤형 3D프린팅 전공정 (소재, 시스템, 3D프린팅 공정) 기술
- 세라믹 3D프린팅 기술을 이용한 생체디바이스 제작기술



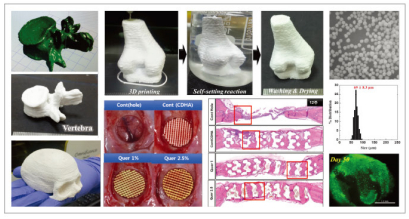
3D프린팅 기술 개념

세라믹 3D프린팅 특징

- 다양한 세라믹 소재에 적용 가능한 압출, 압출-광중합 복합 및 광중합형 세라믹 3D프린팅 KIMS 독자개발 시스템 보유
- 고기능성 생체 디바이스 개발용 무소결 세라믹 3D프린팅 공정기술 보유
- 골조직 재생용 기능성 3차원 골이식재 제조기술 보유



KIMS개발 3D프린터로 제작된 세라믹 구조체

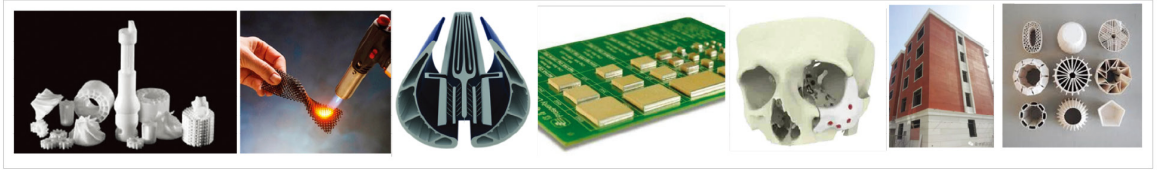


KIMS개발 세라믹 3D프린팅 장비 예

- **[특허] KR10-1754771 PCT/KR2016/007736 세라믹 3차원 프린팅 장치 및 3차원 프린팅 방법**

사업성

- 3D프린팅 기술을 이용한 세라믹 제조공정 혁신
- 다종세라믹 3D프린팅 기술을 이용한 신기능성 세라믹 디바이스 제작 및 신규 응용분야 창출
- 경조직 (치아, 골) 대체 및 재생유도용 생체디바이스



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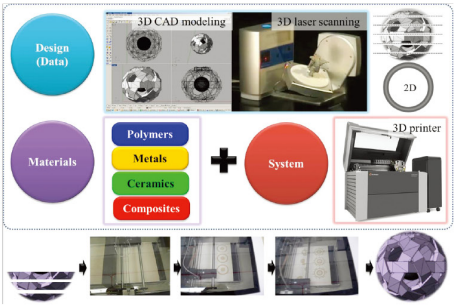
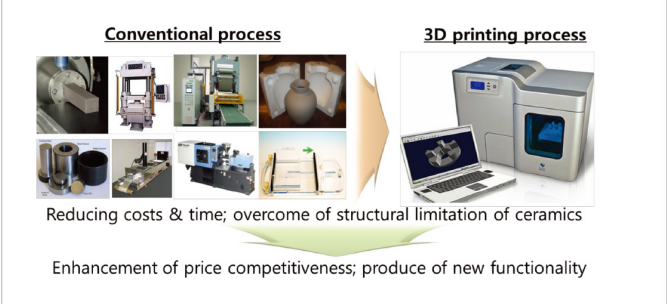
Technology Overview

- Ceramic 3D printing (additive manufacturing) technologies
- Development of bio-devices using ceramic 3D printing process

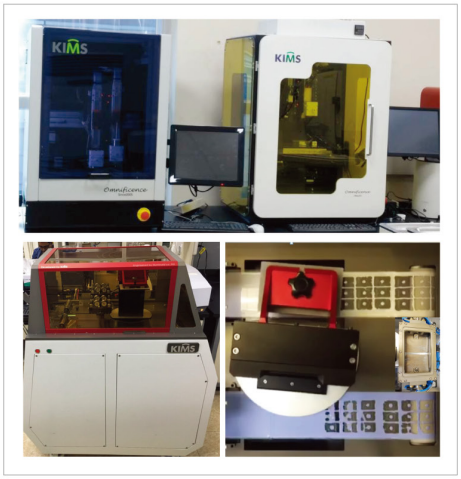


Concept of 3D printing

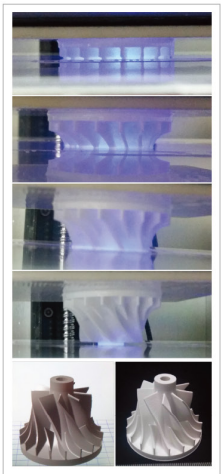


Advantage of ceramic 3D printing

- Development of various types of ceramic 3D printing system (material extruding, combination of material extruding and photo-polymerization, and multi-ceramic printing based on stereolithography) developed by KIMS
- Novel room temperature fabrication process of ceramic scaffolds using 3D printing technology
- Development of ceramic bone substitute for bone tissue regeneration and replacement

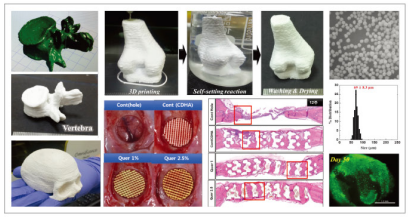


KIMS's proprietary ceramic 3D printing equipment



Process of KIMS's original 3D printing

3D printed ceramic structure; alumina, zirconia, apatite

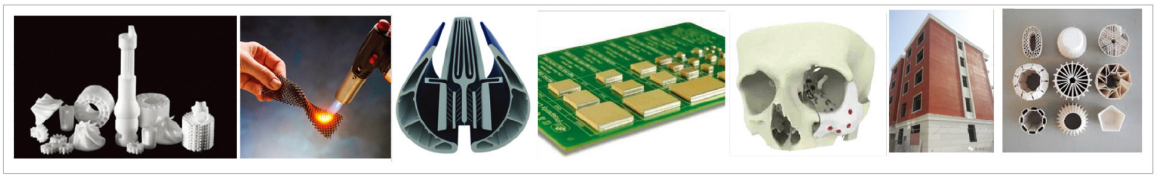


3D printed bone substitutes for bone tissue regeneration

- [Patent] KR10-1754771 PCT/KR2016/0077363D CERAMIC PRINTER AND A METHOD USING THE SAME

Business Cases

- Renovation of ceramic manufacturing using 3D printing technology
- Creation of novel ceramic functionality and new application fields by controlling both 3D structure and composition through multi-material printing technology
- Novel medical devices for hard tissue regeneration and replacement



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