



BMF
BOSTON MICRO FABRICATION



MultiMatter

Multimaterial 3D printing systems

Photocurable 3D printer for the manufacturing of multifunctional heterogeneous structures such as rigid resins, elastomers, hydrogels, shape memory polymers, and conductive elastomers.



MultiMatter — A leader in multimaterial DLP 3D printing technology

offering complete solutions in hardware, software, and materials to achieve efficient, high-precision, and high-quality manufacturing of complex multimaterial structures and devices.



Exclusive centrifugal multimaterial 3D printing technology

Centrifugal multimaterial switching technology

The exclusively developed centrifugal multimaterial switching technology enables efficient material switching and residue removal. The centrifugal speed is adjustable, reaching up to 10,000 RPM, allowing for rapid switching in 60s. The maximum number of switching times in a single printing can reach up to 2,000, which is at the leading level in the industry.

Extensive materials for printing

The system supports multimaterial 3D printing of rigid resins, elastomers, hydrogels, shape memory polymers, conductive elastomers, ceramic slurries, and arbitrary combinations of these materials, with viscosities ranging from 5 to 5000 cps. This provides flexibility in material selection for applications in various fields.

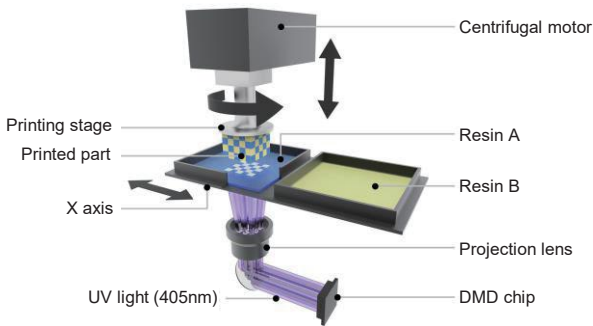
Efficient multi-material slicing software

Independently developed multimaterial model slicing software that generates file formats for automatic multimaterial printing. It supports slicing of multimaterial models with arbitrary spatial distribution of materials. The slicing speed can reach up to 500 layers per minute, meeting the rapid slicing requirements for multimaterial models.

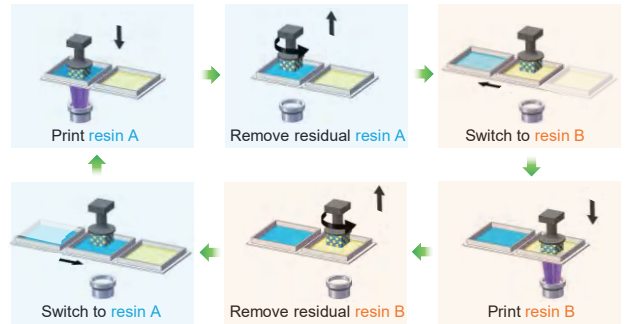
Easy fabrication of heterogeneous objects

The system can print high-complexity, high-precision, multifunctional, and multimaterial structures. It supports simultaneous printing of 2 ~ 4 materials, enabling the efficient printing of both intra-layer and inter-layer multimaterial structures. Additionally, the transition zone between different materials is less than 100 μm.

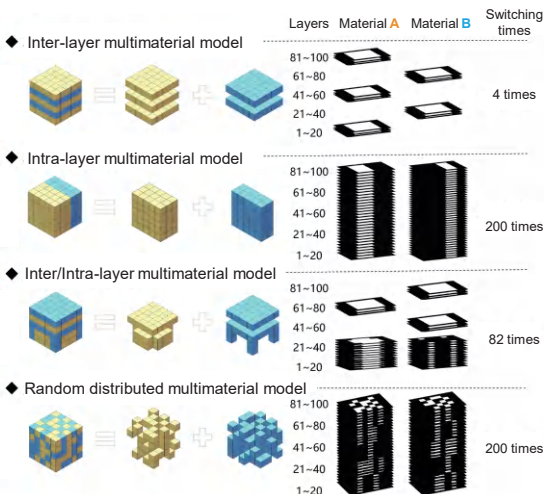
● Technical Principle



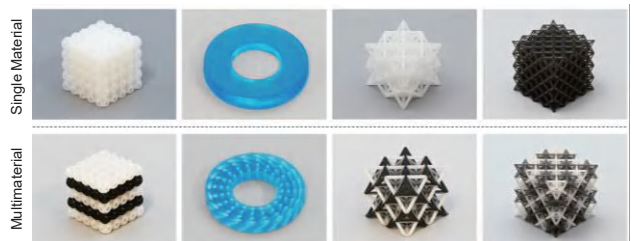
● Printing Flowchart



● Layer-Slicing of Multimaterial Models



● Multimaterial 3D Printing Capacity

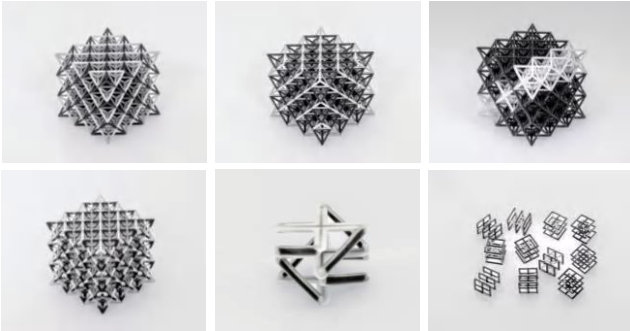


● Multimaterial Makes New Possibilities

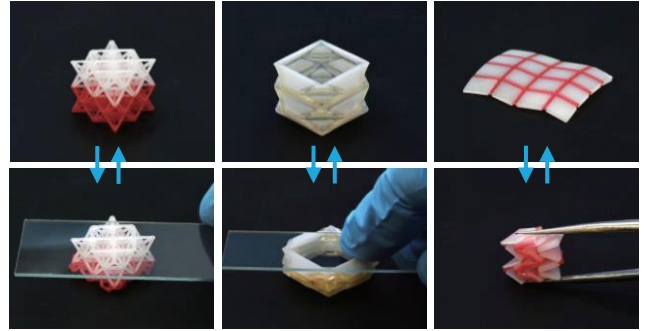
- Rigid polymers | Elastomers
- Hydrogels | Thermosensitive hydrogels
- Rigid polymers | SMPs
- SMPs | Conductive elastomers
- Elastomers | Hydrogels
- Elastomers | Conductive elastomers

3D-Printed Multimaterial Structures

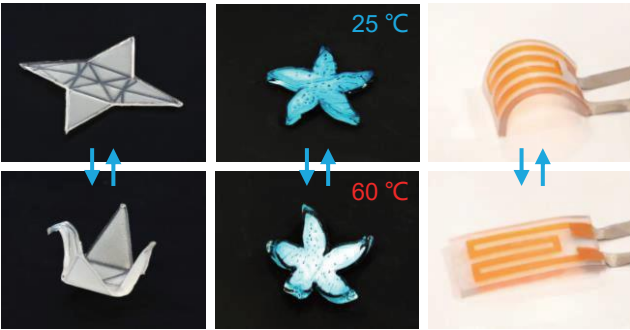
Multimaterial lattices



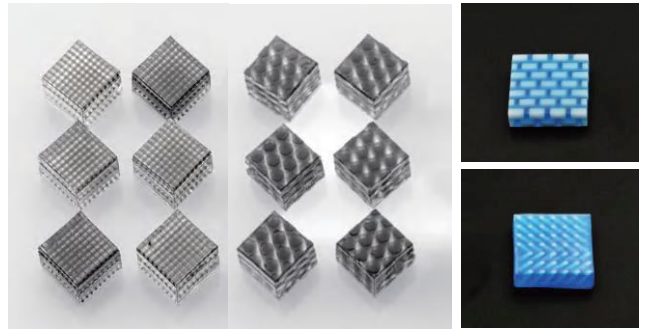
Rigid-Soft Coupled Structures



Multifunctional Structures

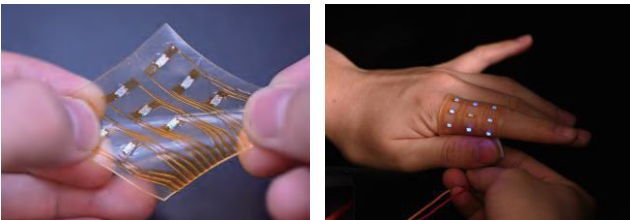


Biomimetic Structures

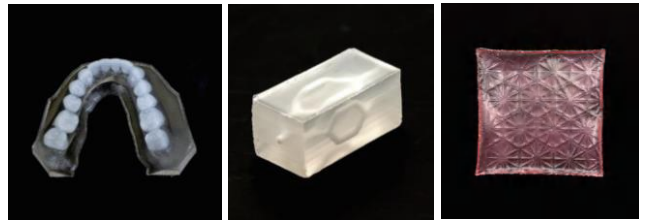


Applications

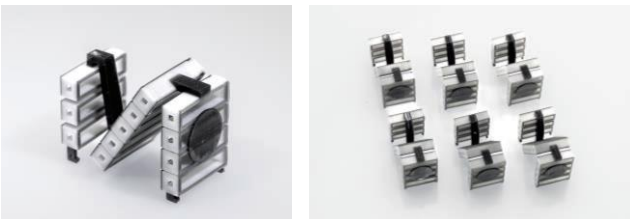
Flexible Electronics



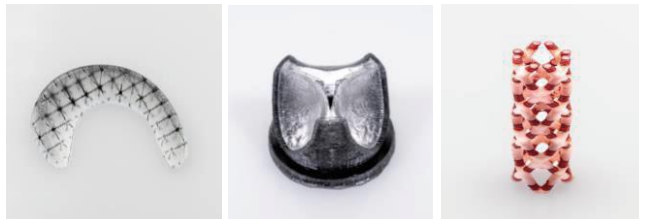
Biomedical Models



Robotics



Implantable Medical Devices



Multimaterial 3D Systems



Product Model	C10 Series	C30 Series	C50 Series
Light source	UV LED (405 nm)	UV LED (405 nm)	UV LED (405 nm)
Optical resolution	50 μm/25 μm	50 μm	25 μm
Printable material	Photocurable resins	Photocurable resins	Photocurable resins
Number of resin vat	2~3	2~3	3~4
Printing mode	Intra-layer/Inter-layer multimaterial	Intra-layer/Inter-layer multimaterial	Intra-layer/Inter-layer multimaterial
Transition zone	<300 μm	<200 μm	<100 μm
Centrifugal speed	1000-5000 rpm	1000-10000 rpm	1000-10000 rpm
Switching mode	Manual switching	Automatic switching	Automatic switching
Material viscosity	5-5000 cps (25 °C)	5-5000 cps (25 °C)	5-5000 cps (25 °C)
Build size	30 (L)×30 (W)×30 (H) (mm)	30 (L)×30 (W)×30 (H) (mm)	50 (L)×50 (W)×50 (H) (mm)
Layer thickness	50-200 μm	50-200 μm	10-200 μm

Material Properties

Rigid resin	Tensile strength	Fracture strain	Young's modulus
RP1	40 MPa	5%	1600 MPa
RP2	25 MPa	16%	1000 MPa
RP3	32 MPa	10%	1300 MPa

Elastomer	Tensile strength	Fracture strain	Young's modulus
EP1	8 MPa	150%	30 MPa
EP2	8.5 MPa	700%	9.0 MPa
EP3	0.49 MPa	300%	0.38 MPa
EP4	5.0 MPa	700%	0.5 MPa

Hydrogel	Water content	Fracture strain	Young's modulus	LCST
HG1T	90%	—	—	40 °C
HG2	80%	800%	7 kPa	—

SMP	Tensile strength	Fracture strain	Young's modulus	T _g	Recovery ratio
SP1 (25 °C)	16 MPa	250%	300 MPa	62 °C	99%
SP1 (87 °C)	0.3 MPa	400%	0.2 MPa		

Conductive elastomer	Tensile strength	Fracture strain	Young's modulus	Conductivity
CE1	0.1 MPa	600%	300 kPa	8.0 × 10 ⁻⁴ S/m



CONTACT BMF APAC

+86-755-26600689
 bmf@bmftec.cn
 www.bmf3dapac.com
 Hongshan 6979 Plaza, Longhua District, Shenzhen City, Guangdong Province, China 518129

