

Fig. S1 Photo of wax droplet generating system

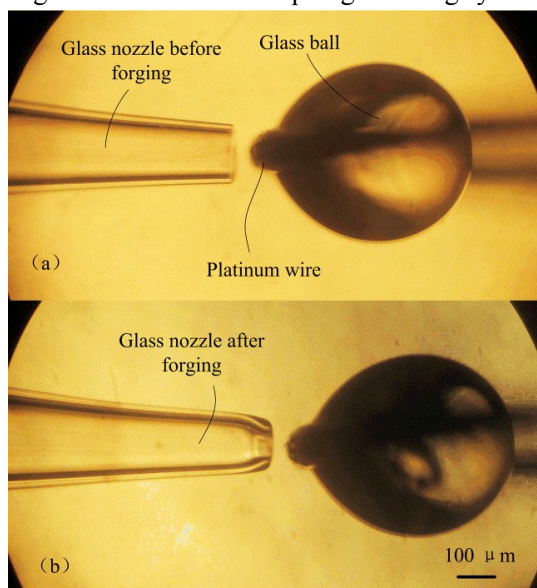


Fig. S2 Photo of glass nozzle used for 3D wax jetting, (a) Glass nozzle pulled with Sutter P2000/G and cut on the tip, the parameters are as follows: HEAT=350, FIL=5, VEL=60, DEL=225, PUL=55, (b) Forged glass nozzle with outlet diameter of 75 μm

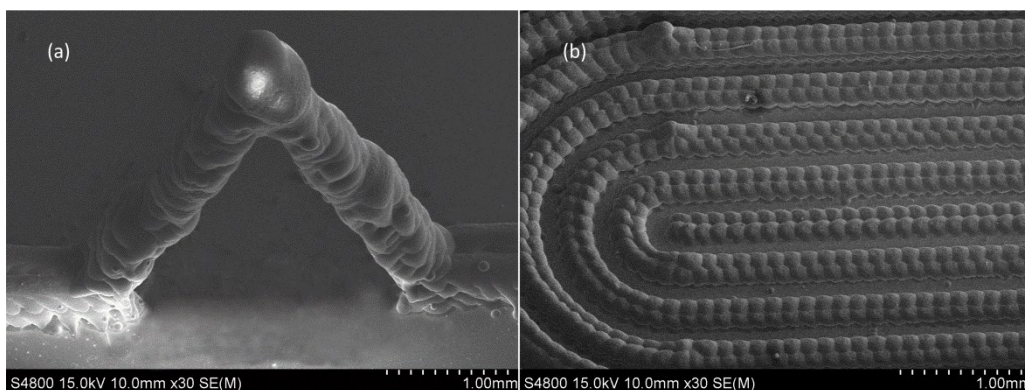


Fig. S3 SEM photo of the 3D printed wax structures (a) The bridge wax structure, (b) Part of the 3D printed letter “U”

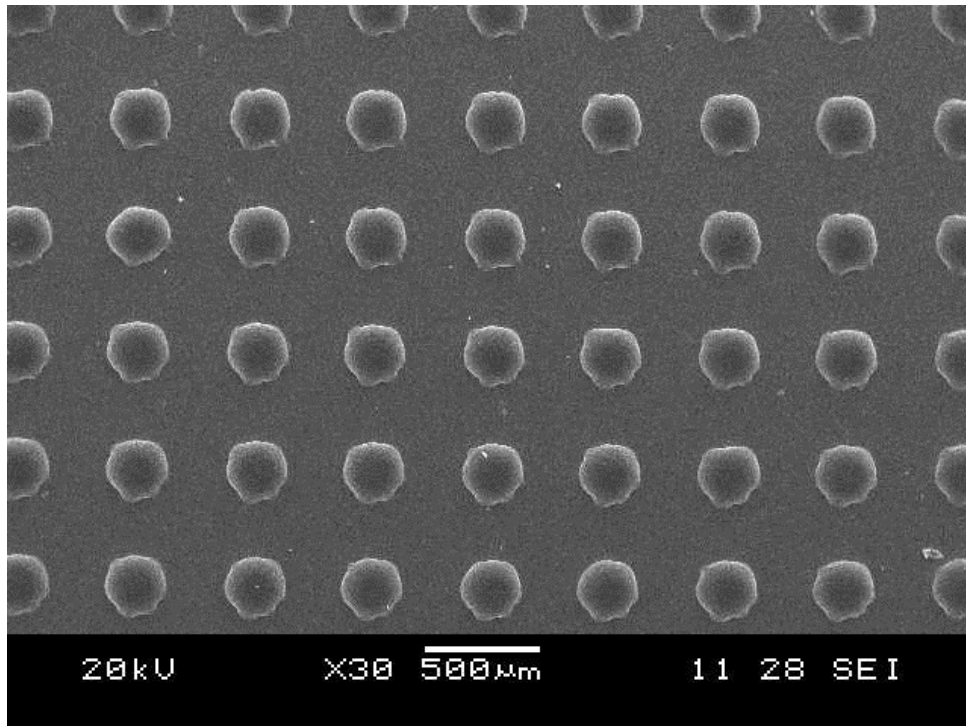


Fig. S4 SEM photo of the 3D printed wax droplet array

Table S1 G-code used for the 3D wax printing

Function	Moving with jetting	Moving on empty	Slide transferring	Speed setting
G-code	G1 F120	M84 E0	G91	G1 F...
	G1 E0.1	G1 X...,Y...	G1 Z...	
	G1 E0.2	M84 E0	M84 E0	
	G1 X...,Y...		G90	
	M84 E0			

1. Modification of Marlin firmware used in the paper

File title: Configuration.h

The section of the temperature setting with comment was shown below.

```
//this prevents dangerous Extruder moves, i.e. if the temperature is under the limit
#define PREVENT_DANGEROUS_EXTRUDE
//if PREVENT_DANGEROUS_EXTRUDE is on, you can still disable (uncomment)
very long bits of extrusion separately.
#define PREVENT_LENGTHY_EXTRUDE
```

```
#define EXTRUDE_MINTEMP 15
#define EXTRUDE_MAXLENGTH (X_MAX_LENGTH+Y_MAX_LENGTH)
//prevent extrusion of very large distances.
```

We could find that this **EXTRUDE_MINTEMP** was used to protect the extruder. Because

for the FDM printer, the minimum melting temperature of ABS or PLA material was 170 °C, and when the extruder worked under 170 °C, the machine would break down. But for the wax printing, 70 °C was fine. So, we set this parameter value as 15.

2. Header of the program used in this paper

```
M140 S30 // M140 - Set bed target temp
M109 S75// M109 - Wait for extruder current temp to reach target temp.
M190 S30 // M190 - Wait for bed current temp to reach target temp.
G21// use the metric unit
G90 // G90 - Use Absolute Coordinates
M107// M107 Fan Off
G28 X0 Y0 Z0// G28 - Home all Axis
G92 E0// G92 - Set current position to coordinates given
G92 Z75
G1 Z0.2 F400// G1 - Coordinated Movement X Y Z E
M140 S30
G90
G21
M105// M105 - Read current temp
G1 F500 // Set the empty move speed as 500mm/min
```

3. Layer changing program used in this paper

```
M84 E0 // Disable the extruder stepper until next move, or use S<seconds> to specify an
          Inactivity timeout, after which the steppers will be disabled. S0 to disable the
          timeout.
G91 Z0.1 // Raise the nozzle 0.1 mm relative to the current position
G90 // Use Absolute Coordinates
G1 F500 // Set the empty move speed as 500mm/min
M84 E0
```