

Create new forms and personalized chocolate creations via 3D printing

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Photos de
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Centre Culinaire
Contemporain

3D Food printing

Why ?

Why 3DP ?

Customization of
shape,
colour, ...

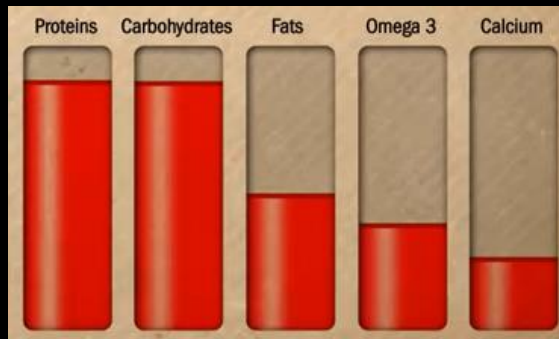
Access to
crazy shapes



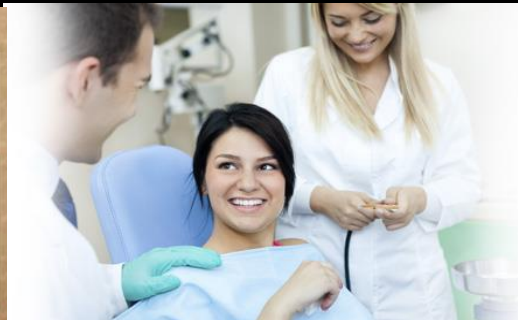
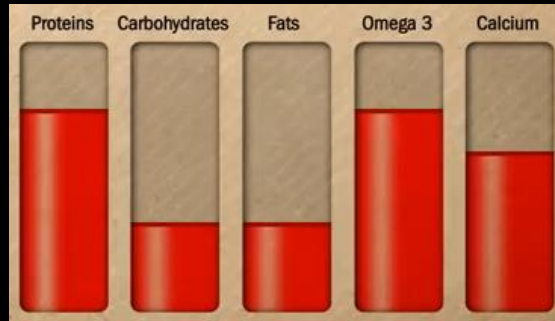
Customization of the food composition for HEALTH

(nutrients: vitamins, carbohydrates, fats, fibers, allergens, ...)

Sportsman



Pregnant woman



Customization of the food appearance for PLEASURE

Elderly



Soldiers



Astronauts



Introduction of new ingredients in food

Insects,
Algae, ...



Why 3DP ?

Economical advantage



Cheaper production of items
of low volume

3D Food printing

How ?

How print in 3D ?

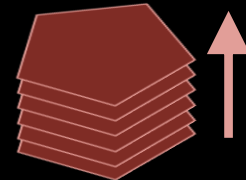
Similar to 3D printing of PLASTICS

1 – printing in 2D



2 – solidification / cristallisation

3 – printing in the 3rd direction

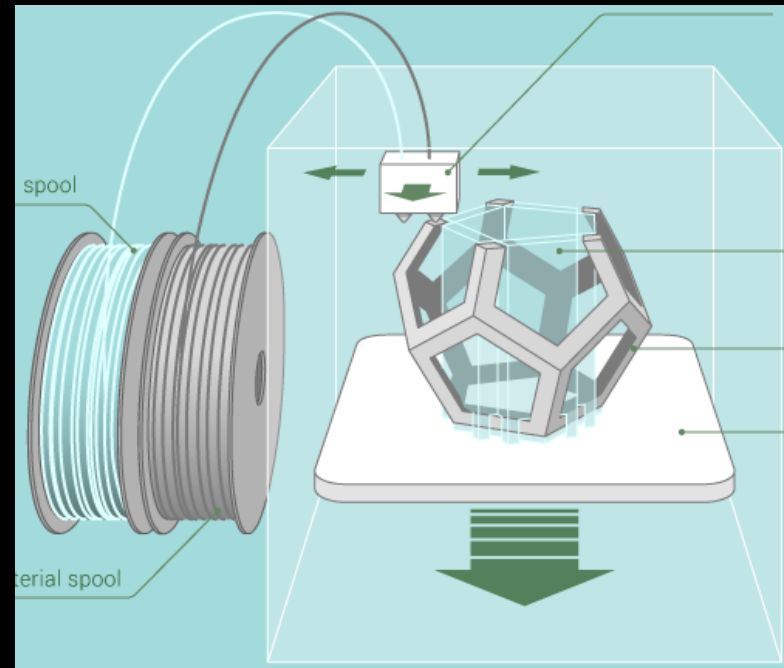


How print in 3D ?

Additive manufacturing of PLASTICS

FDM

Fused Deposition Modelling



How print in 3D ?

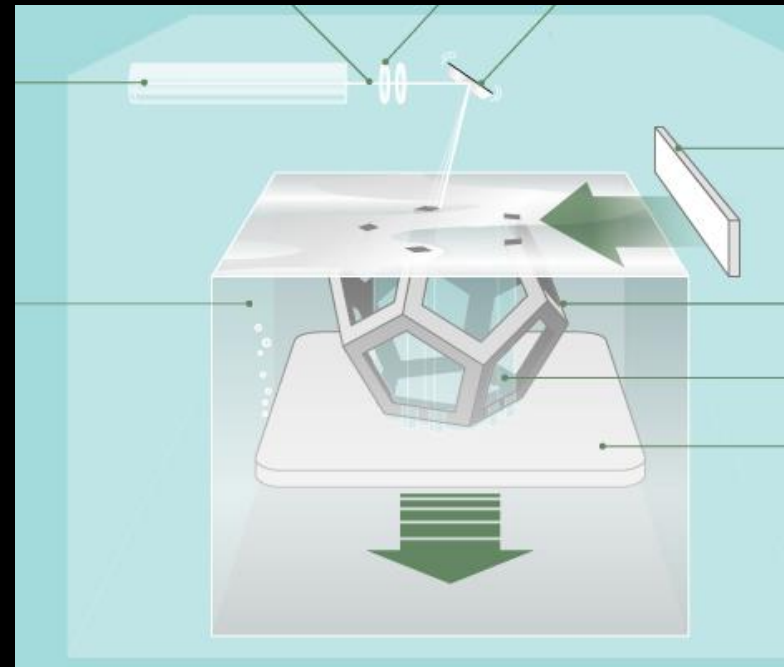
Additive manufacturing of PLASTICS

LASER polymerization of a resin



FDM

SLA



How print in 3D ?

Additive manufacturing of PLASTICS



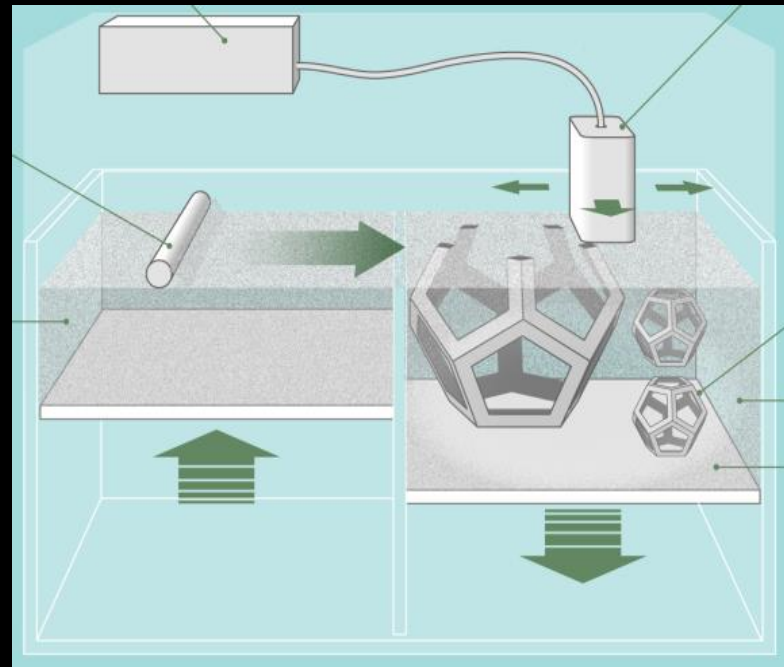
FDM

SLA



BJ

Binder jetting



How print in 3D ?

Additive manufacturing of PLASTICS

LASER sintering of a powder



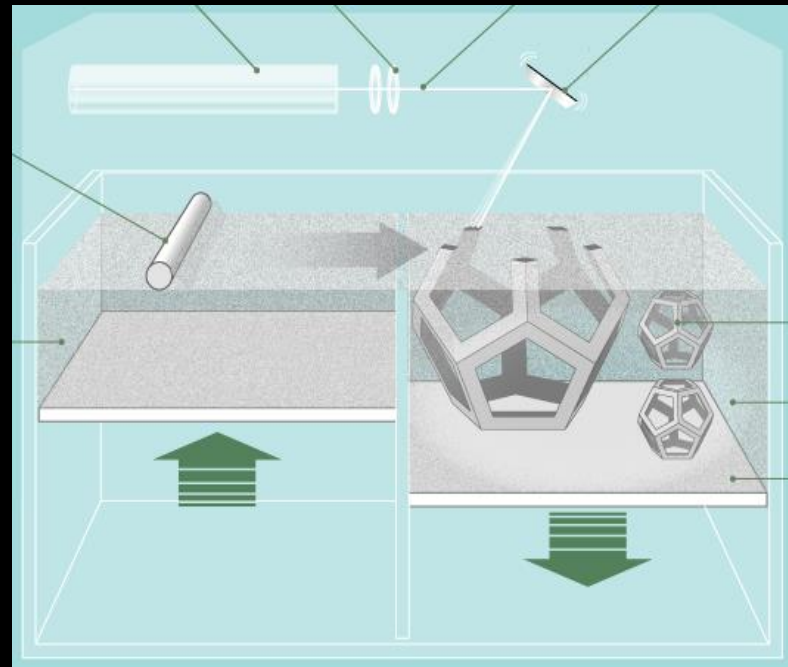
FDM

SLA



BJ

SLS



How print in 3D ?

Additive manufacturing of PLASTICS

→ FOOD



FDM

SLA



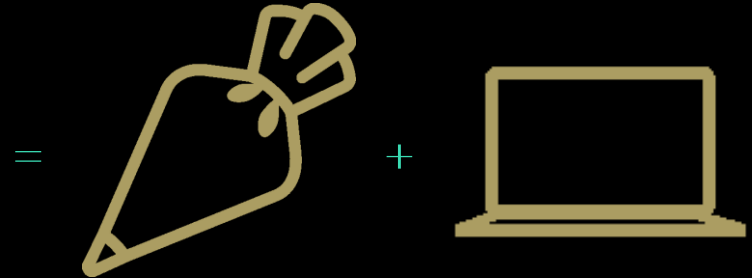
BJ

SLS



How print in 3D ?

3D printing of FOOD by FDM



Head assembly
(plastics)

Syringe and a nozzle (needle) =
piping bag



A lot of parameters to optimize ...

food-related
material

viscosity

temperature

composition (thickener, gelling, ...)

Printing
process

resolution

extrusion speed

displacement speed of the head extruder

flow

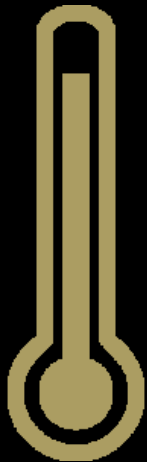
post-printing steps (heating, cooling)

3D Food printing

Which food ?

Which food ?

Main feature of the food to be printable :



(semi)fluid at higher temperature



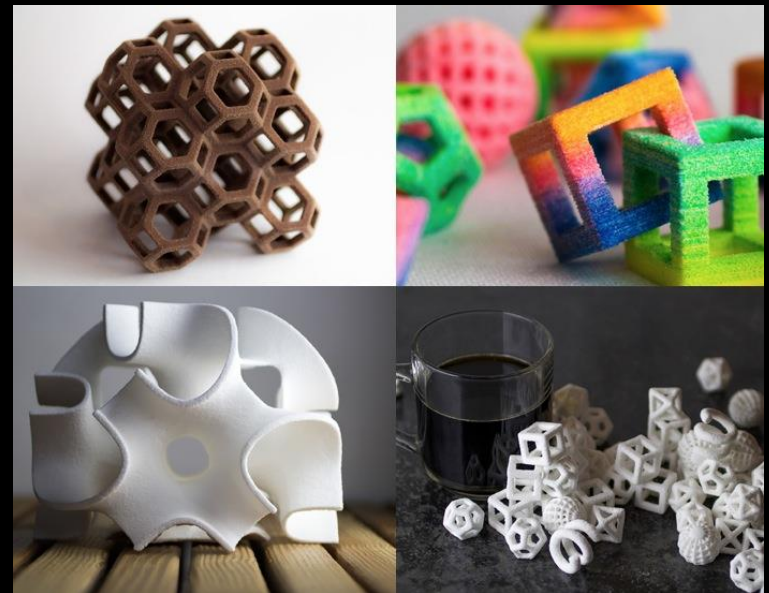
solid at room temperature



Adapted texture of food-related material: mashed,
powder, (semi)-fluid paste

Which food ?

3D printing of SUGAR → Binder jetting





Which food ?

3D printing of SUGAR → LASER sintering





Which food ?

3D printing of SUGAR/ALMOND/EGG → LASER sintering





Which food ?

3D printing of PASTA



FDM





Which food ?

3D printing of PANCAKE BATTER



FDM





Which food ?

3D printing of DAIRY PRODUCTS



FDM



Which food ?

3D printing of CHOCOLATE



FDM



ChocALM



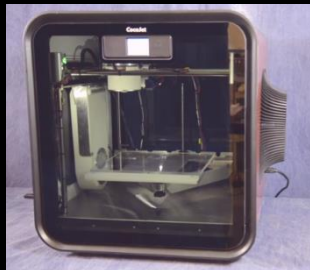
ChocEdge



Qiaoke



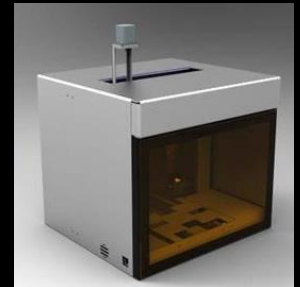
ByFlow



CocoJet



Bocusini



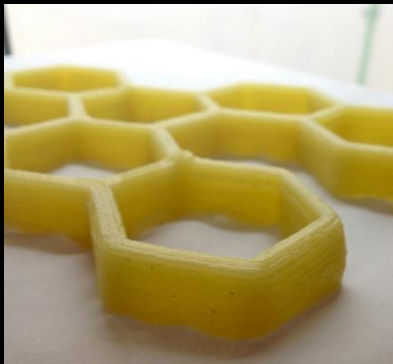
ChocoBot

3D printing of CHOCOLATE



Which food ?

Other examples



3D Food printing

@ SGL

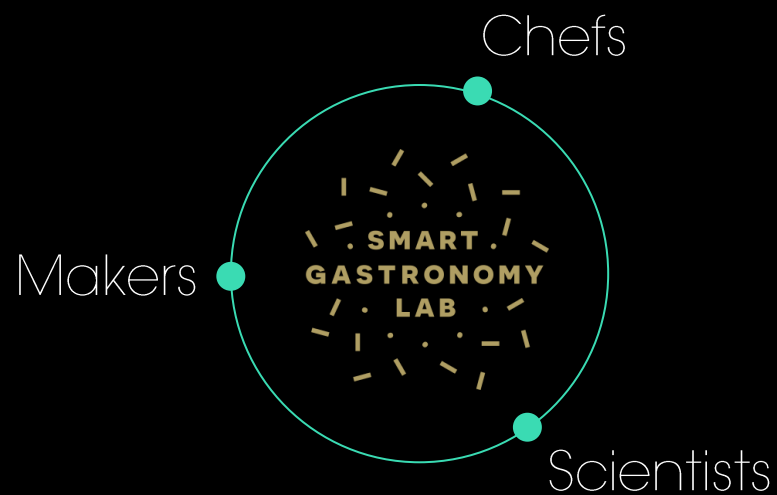
Development of our own 3D printer



R&D on various food matrices



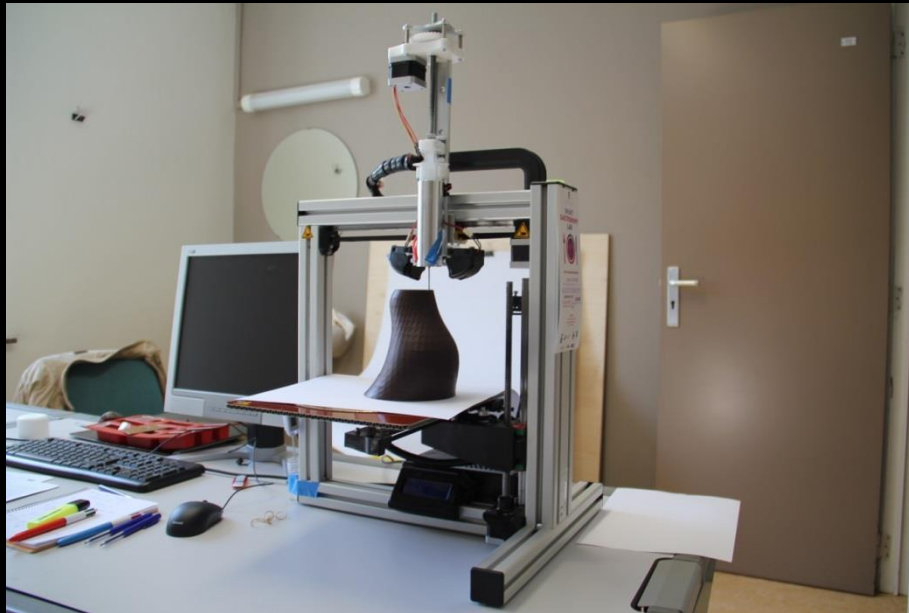
Production of innovative shapes



Multi-disciplinarity !



Our prototype



Food grade

What can be done with chocolate...



- with black / milk / white (/ red ?)

- no additives



Pièces à la demande B2B

Production de formes ... personnalisées
impossible à obtenir d'une autre manière
grande finesse et apparence parfaite



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