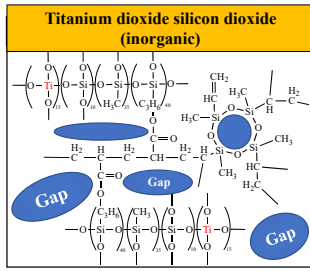
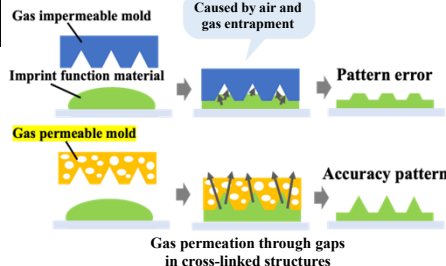


Back Ground

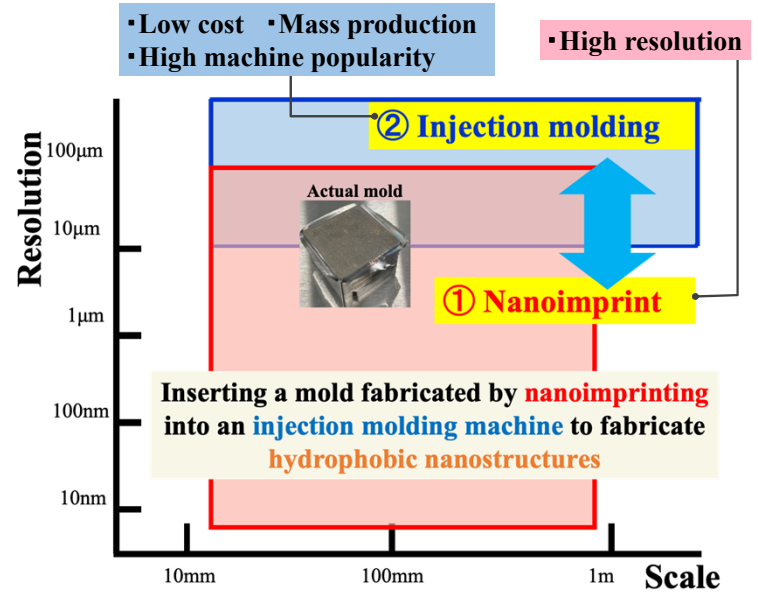
Gas-permeable mold



Nanoimprint



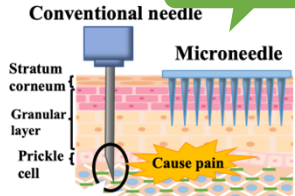
Collaboration of injection molding and nanoimprinting



Nanoimprinting using gas-permeable mold

Cosmetics/pharmaceutical applications

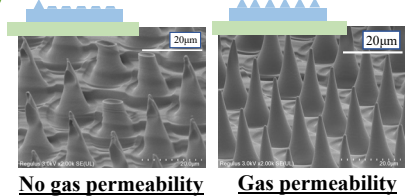
Penetrates without pain



[Result]

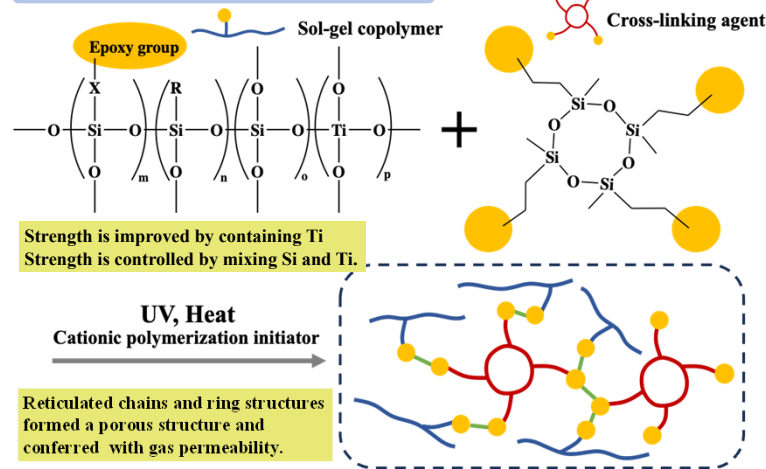
Conventional

Our study



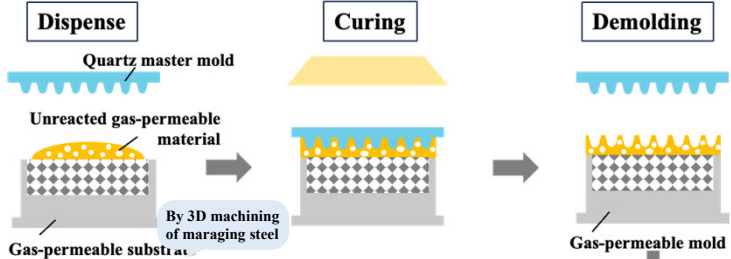
Methods

Synthesis of gas permeable molds

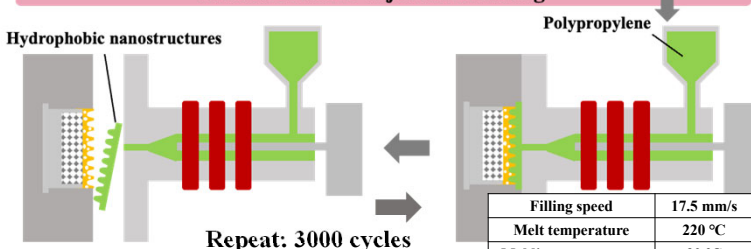


Processes

First Process: Nano Imprint



Second Process: Injection Molding

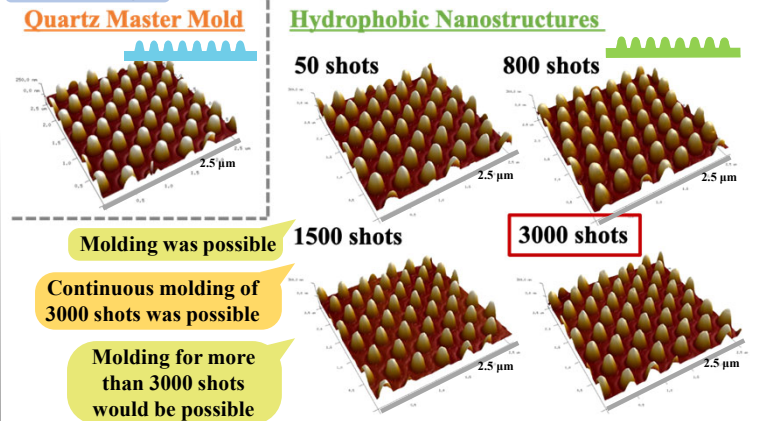


Only a partial change in mold structure (no need for major equipment changes)

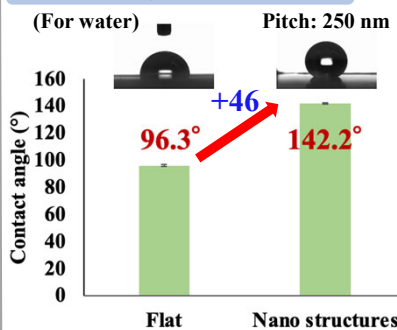
Filling speed	17.5 mm/s
Melt temperature	220 °C
Molding temperature	30 °C
Holding pressure	20 MPa
Holding pressure time	10 s
Cooling time	10 s

Results

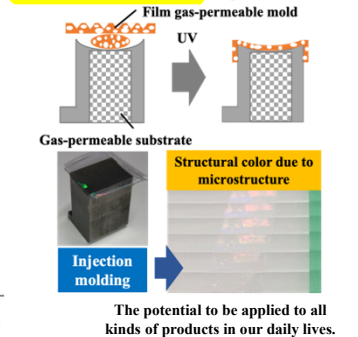
SPM images



Contact angle measurement



Curved surface



Conclusion

Nanostructures could be fabricated 3000 times. Contact angle: +46°

We suggest advanced microfabrication technology using nanoimprint and injection molding.

Advantage

- Resolution: 300 nm
- 1. Low cost
- 2. Mass production

- Injection molding 3000 cycles and more
- Improve the effects of gas during molding

Applications

- Hydrophobic materials
- Antifouling plastics