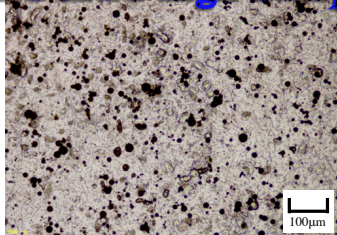


# Fabrication and Evaluation of Novel Smart Materials

Professor Go Murasawa

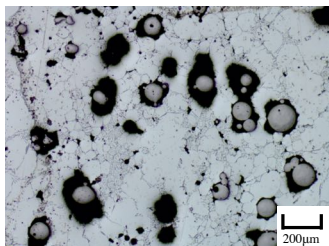
## Light weight, high strength and ultra high damping performance materials



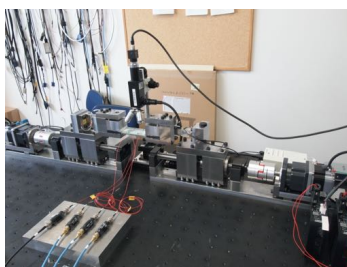
Micro porous AlSi alloy



Mechanical characteristic evaluation in SEM

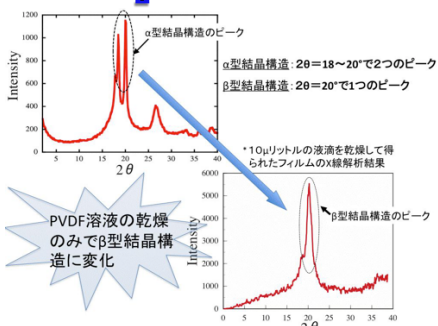


Micro bell-typ porous metal

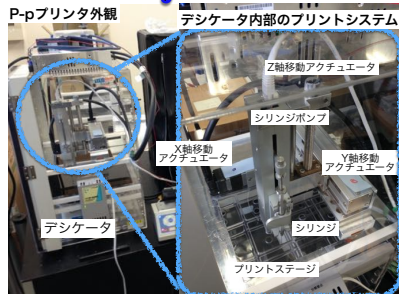


In-house evaluation system for deformation

## Development of Piezoelectric Polymer Printer



Crystalline structure change of PVDF solution droplet under dry process



プリントド PVDFフィルム

Piezoelectric polymer printer

Content:

### Micro bell-type porous metals

We used a new method to fabricate micro bell-type porous metal from glass microcapsules and liquid metal. This metal, which is more than 20% lighter than bulk material, also shows a unique characteristic: high-frequency oscillation is greatly attenuated when propagated in its medium.

### P-p printer system

Present piezoelectric polymer dual head printer system (P-p dual head printer system) enable us to print the fine PVDF films on a substrate. Furthermore, their crystalline structure can be selected by fabrication method of PVDF ink for printing.

Appealing point:

We fabricate novel smart materials such as micro bell-type porous metals for ultra high damping material, magnetostrictive composite materials for energy harvesting and printed PVDF films for sensor&actuator device. Furthermore, their original evaluation system is constructed in our laboratory.

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Research Interest : Smart materials, Experimental mechanics

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