

LAB. FOR ADDITIVE MANUFACTURING SCIENCE NIINO LAB.

[New Manufacturing for New Device]

Design-Led X Platform

Department of Mechanical and Biofunctional Systems

Base Technologies for Future Robots

Dept. of Precision Engineering

<http://lams.iis.u-Tokyo.ac.jp/>

3D Printing and MID (Molded Interconnect Device)

This lab aims to create novel mechanical and electrical devices with novel manufacturing technology. To do this, we emphasize on functional 3D geometrical shape made of combined material. In detail, we focus on Additive Manufacturing (AM) and Molded Interconnect Device (MID) and their application.



Our Projects

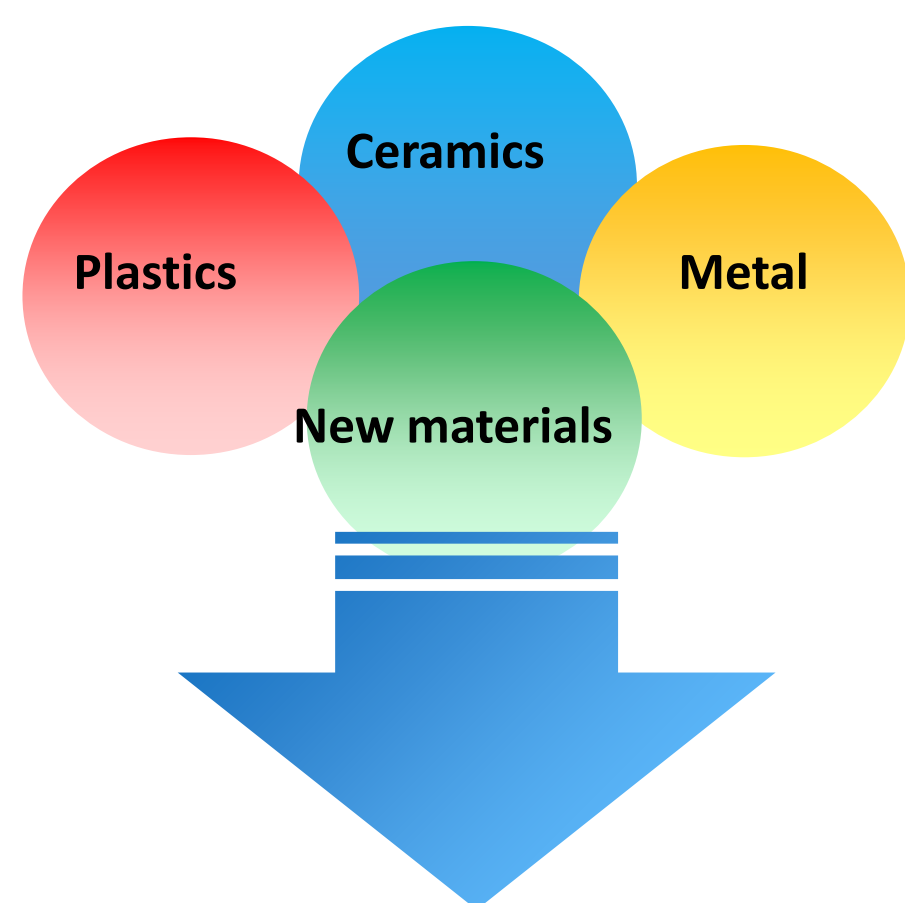
Additive Manufacturing (AM)

New AM Process

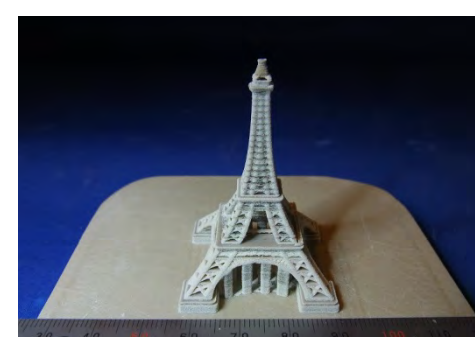
- Process Development in Laser Sintering Fabrication
- Laser Sintering Process for High Performance Polymer

AM Application

- Laser Sintering Fabrication realizing High Porosity and Intensity
- Laser Sintering Fabrication of Tissue Engineering Scaffolds
- Application of Photonic Device using Laser Sintering Fabrication



Low temperature laser sintering



Eiffel tower using PEEK (High performance plastic)



Microscopic object fabrication

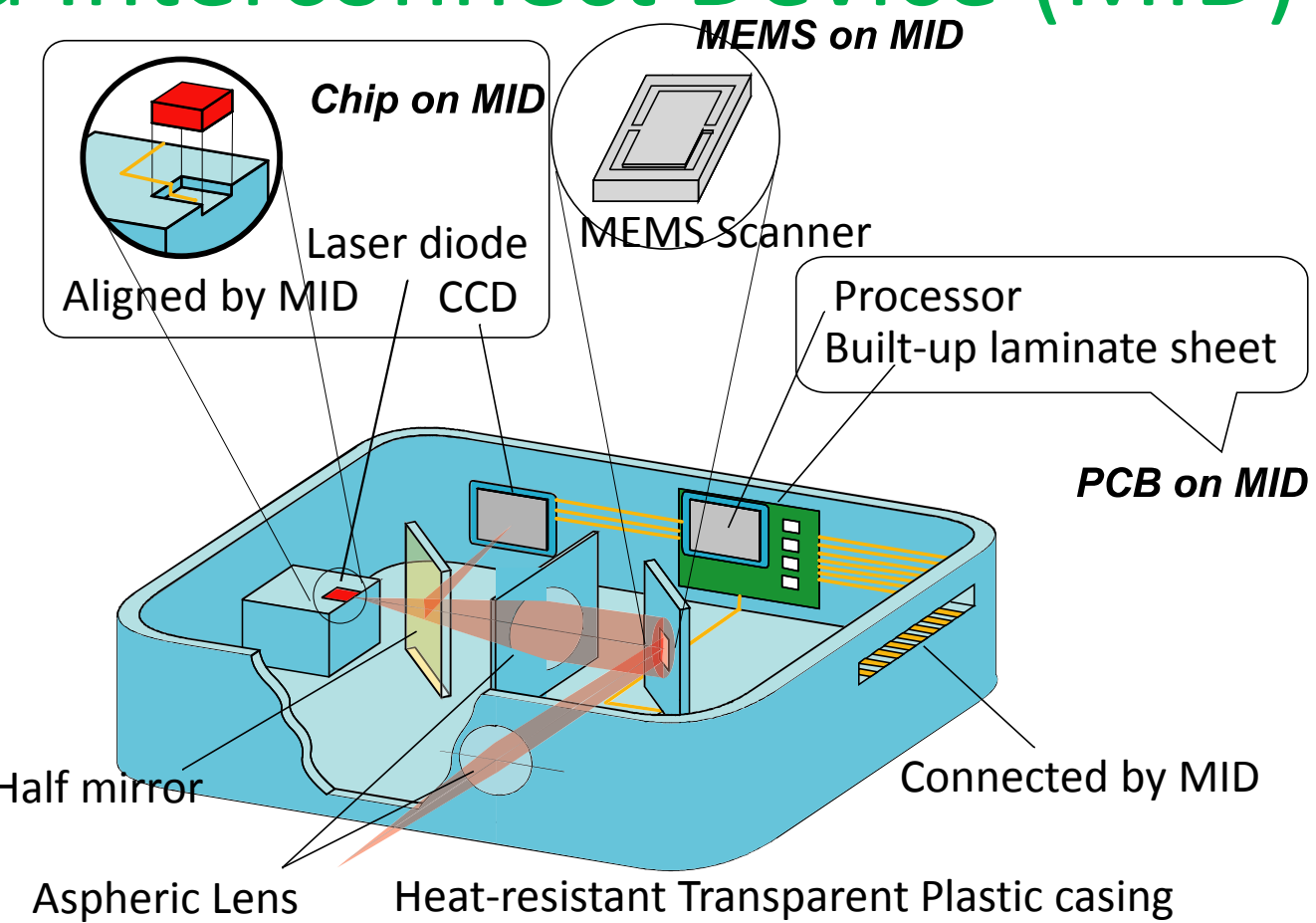


3D Tissue engineering scaffold



Fabrication of Amorphous Structures (Photonic Fractal)

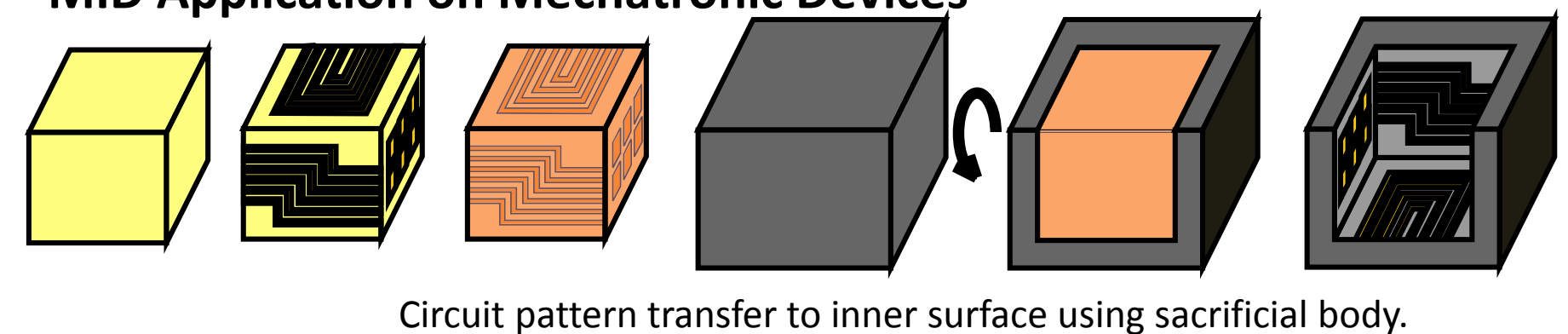
Molded Interconnect Device (MID)



Fabrication process for MIDs

- MID fabrication process using sacrificial body

MID Application on Mechatronic Devices



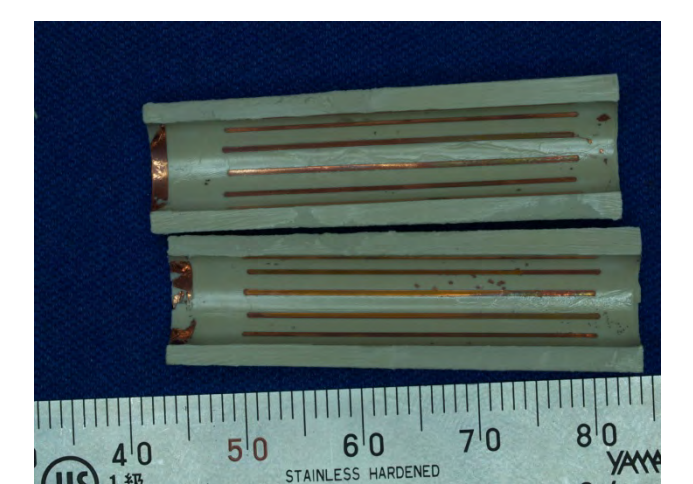
Circuit pattern transfer to inner surface using sacrificial body.

MID Application

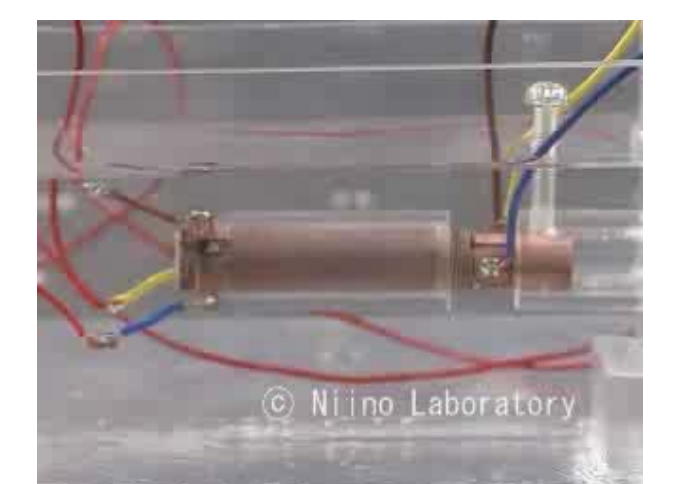
- Circuit pattern transfer to inner surface of objects using sacrificial material



Sacrificial body + Soft etching

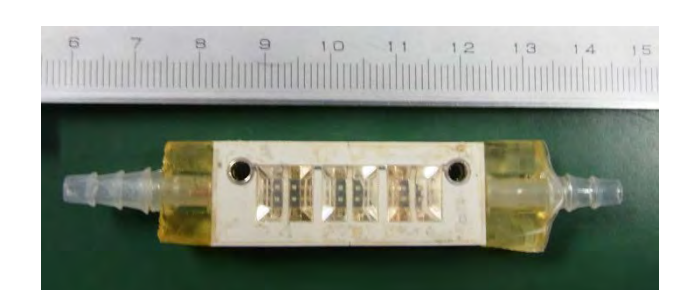
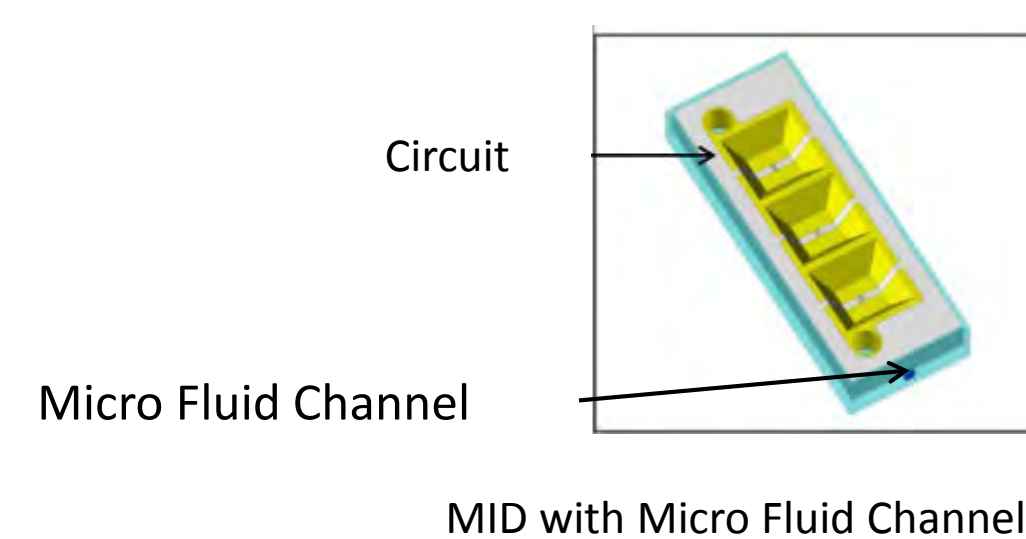


- MID Application on Static Electric Motor.



Electrostatic Motor using MID technology

- Injection Molded Functional Fluid Channel



AM MID Integration

- Additive Manufacturing of Metal-Plastic Complex Body

