NIINO LAB.

[New Manufacturing Technology for New Device]

Design-Led X Platform
Department of Mechanical and Biofunctional Systems
Social Cooperation Program, Base Technology for Future Robots

Additive Manufacturing Science

Department 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.

miami Manufacturing Initiative through Additive Manufacturing Innovation

LAMS Laboratory for Additive Manufacturing Science

Our Projects

Additive Manufacturing (AM)

New AM Process

- **Process Development in Laser Sintering Fabrication**

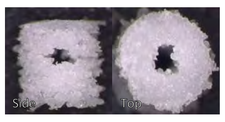
Low temperature laser sintering

- **Laser Sintering Process for High Performance Polymer**

Eiffel tower using PEEK
(High performance plastic)

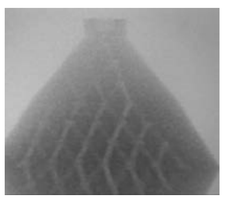
AM Application

- **Laser Sintering Fabrication realizing High Porosity and Intensity**



Microscopic object fabrication

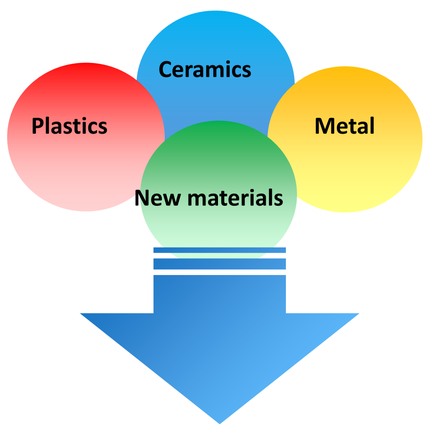
- **Laser Sintering Fabrication of Tissue Engineering Scaffolds**



3D Tissue engineering scaffold

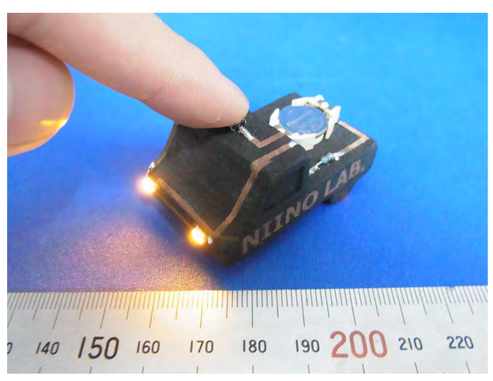
- **Application of Photonic Device using Laser Sintering Fabrication**

Fabrication of Amorphous
Structures (Photonic Fractal)

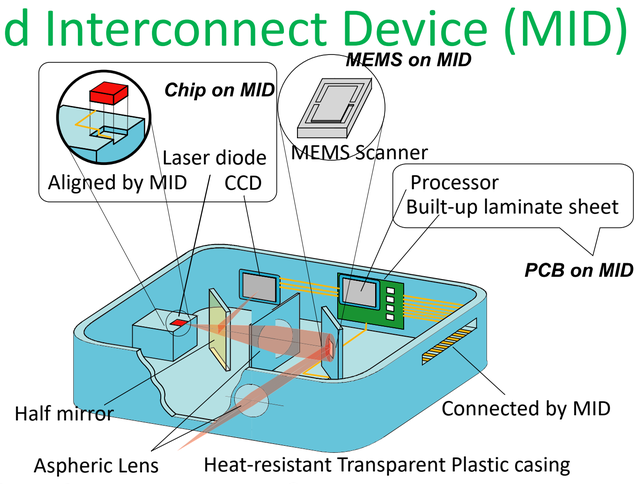


AM MID Integration

- **Additive Manufacturing of Metal-Plastic Complex Body**



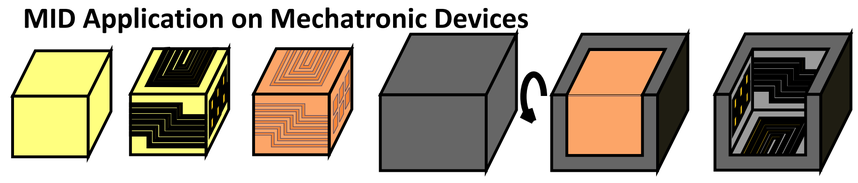
Molded Interconnect Device (MID)



Fabrication process for MIDs

- MID fabrication process using sacrificial body

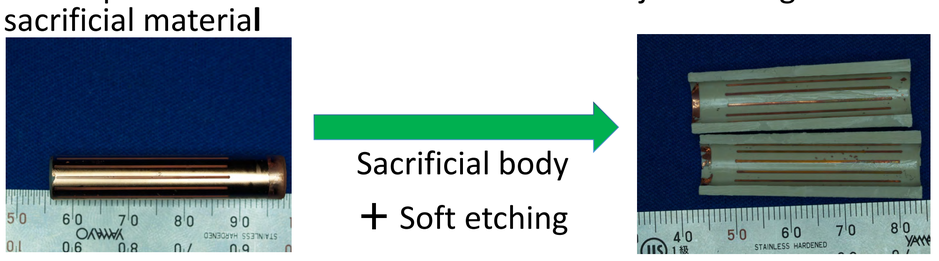
MID Application on Mechatronic Devices



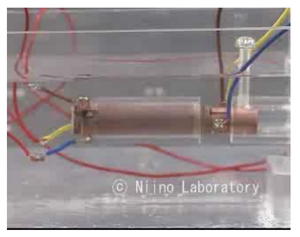
Circuit pattern transfer to inner surface using sacrificial body.

MID Application

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

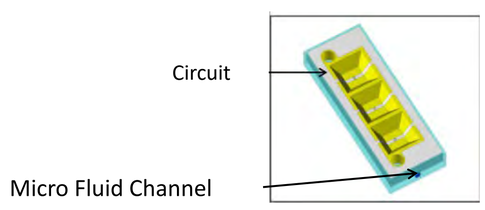


- **MID Application on**
  Static Electric Motor.



Electrostatic Motor using
MID technology

- **Injection Molded Functional Fluid Channel**



MID with Micro Fluid Channel