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.

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

AM MID Integration

- Additive Manufacturing of Metal-Plastic Complex Body

Molded Interconnect Device (MID)

Fabrication process for MIDs

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

AM MID Integration

- Additive Manufacturing of Metal-Plastic Complex Body

Fabrication of Amorphous Structures (Photonic Fractal)

Laser Sintering Process for High Performance Polymer

Injection Molded Functional Fluid Channel

Electrostatic Motor using MID technology

Sacrificial body + Soft etching

Connected by MID

Injection Molded Functional Fluid Channel

MID with Micro Fluid Channel

Half etch

Sacrificial body

Heat-resistant Transparent Plastic casing

Aspheric lens

3D Tissue engineering scaffold

Microscopic object fabrication

Laser sintering using PEKK (High performance plastic)