

# Production of Gravel from Lunar Soil Simulant by Rapid Microwave Sintering

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Process	Product Material
Compaction	Improved ground, Foundations
Packing in bags	Regolith bags
Mixing binder agents	Concrete, Geopolymer
Sintering	Bricks, Paving materials
Melting	Cast materials, fibers, rods
Reduction	Metals

**Needs for Forming/Molding Works**

# Preliminary Test of Microwave Sintering

## ➤ Conditions

Raw material: Lunar Soil Simulant (FJS-1)

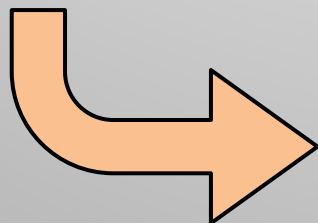
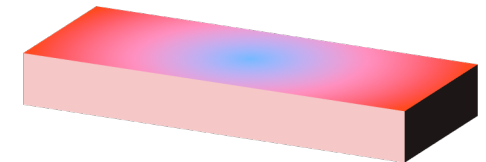
Product shape: Brick

Microwave: Multi-mode

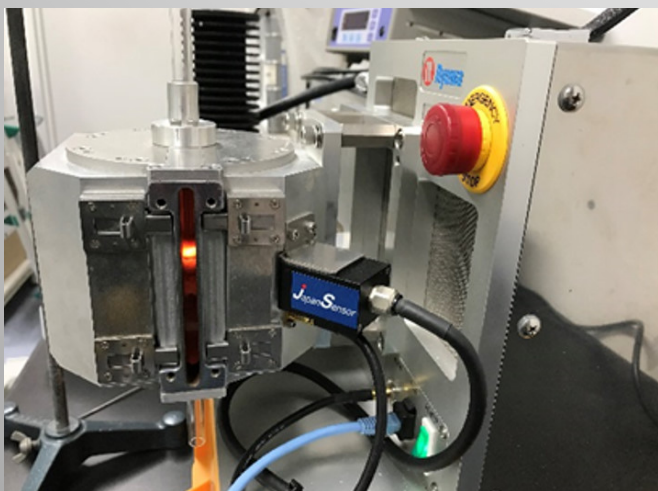
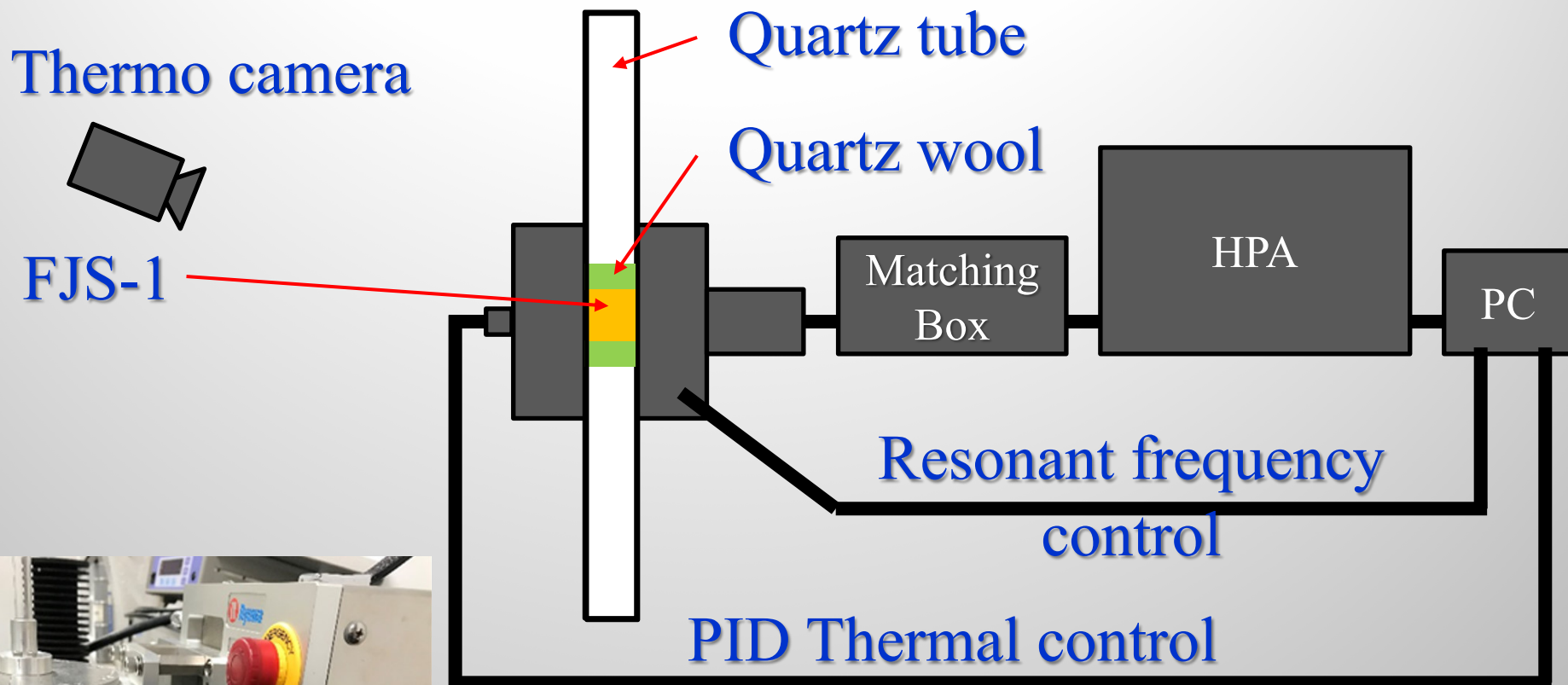
## ➤ Problems

Susceptor is required for sufficient sintering.

Homogeneous sintering was difficult.



Single-mode microwave resonator  
Semiconductor microwave generator



Raw material: FJS-1

Microwave: Single-mode ( $TM_{010}$ )

Air/ Vacuum



Technology Advancement Node for SpAce eXploration