

CASE STUDY



MAX-PLANCK-GESELLSCHAFT



Max-Planck-Institut für extraterrestrische Physik

Max-Planck Gesellschaft, Germany

Semicase-10 Date: 14.10.2020



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PRODUCT

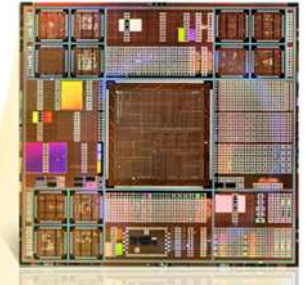
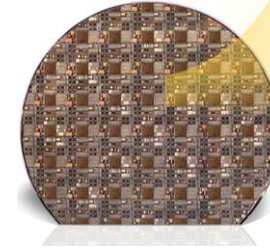
Multi-Project-Wafer

For their astrophysical research, the Max Planck Institute for Extraterrestrial Physics measures the radiation of distant objects in different spectral ranges from infrared to X-ray and gamma wavelengths.

For this purpose, highly sensitive detectors in the form of microchips are developed that must be produced and separated in small numbers on a silicon wafer.

LMJ used for:

- Dicing
- Single die cutting



CHALLENGE

Perfect cut on a challenging material alloy

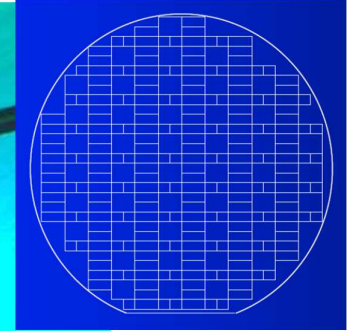
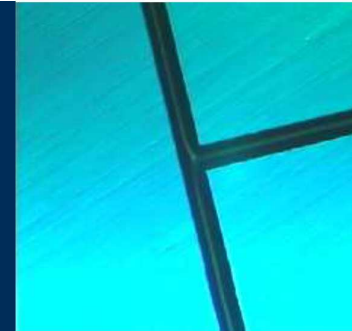
Platinum-Iridium is a challenging material to cut/ablate due to its very high fusion and boiling temperatures.

Main processing criteria:

- T-cuts
- No thermal damage
- Low contamination
- Perfect verticality
- Narrow tolerances

Machining technologies able to reach these criteria:

- Diamond blade sawing
- Laser MicroJet (LMJ) - water jet guided laser technology



SOLUTION

High geometric flexibility, no thermal influence

LMJ advantages versus blade sawing:

- Flexibility in cutting path
- Cutting line can stop wherever needed
- More dies per wafer
- No destruction of dies by sawing through

Installed machine type:

- 1 x LDS 300
- 100 W IR laser



LDS 300

