

# Application Areas

## Aerospace

- Drilling acoustic damping holes ( $\varnothing$  200  $\mu$ m)
- Drilling cooling holes in ceramic coated metals ( $\varnothing$  1 mm)



GLARE fuselage and leading edges panels for Airbus A380

## Solar Energy

- Drilling & scribing silicon wafer
- Crystallisation & annealing



Advanced solar panels

## Automotive

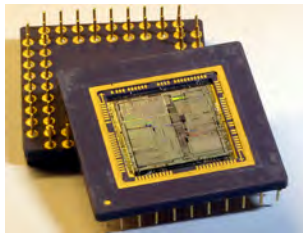
- Drilling fuel cells ( $\varnothing$  20  $\mu$ m)
- Material treatment



Nuon Solar Car

## Semiconductors

- Silicon wafer drilling
- Surface selective roughening
- Percussion drilling



Novel semiconductors manufacturing

## Task? The solution!

If you are interested in cooperation, please contact:

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Sirius Laser Facility

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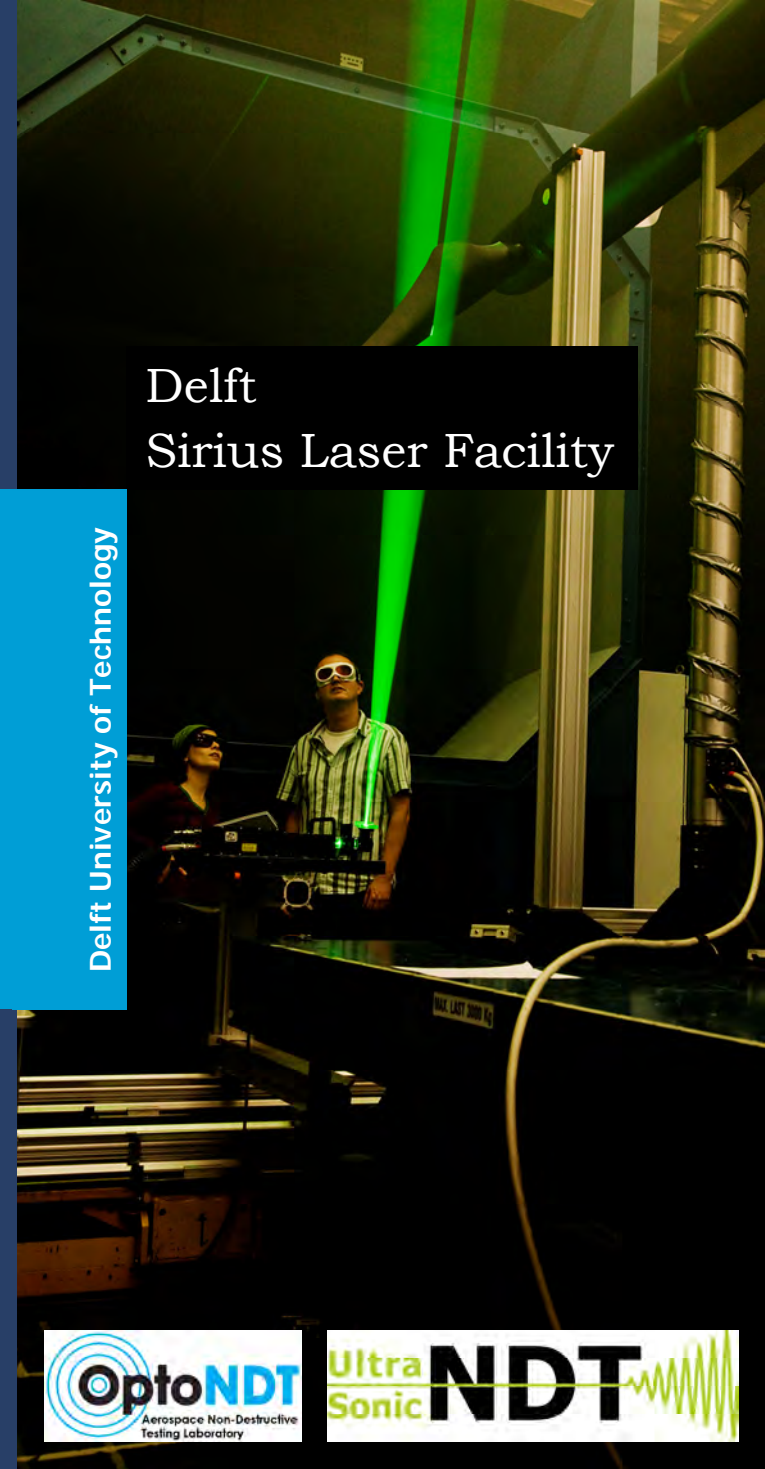
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Delft University of Technology

Delft  
Sirius Laser Facility



Challenge the future

# Delft Sirius Laser Facility

## Objective:

Research and innovation of advanced aerospace, automotive and semiconductors materials

## About the Sirius Laser

Sirius 1000 Laser is a 1 kW excimer laser, which generates 1 J pulses at an optical wavelength of 308 nm. The pulse length is 200 ns and the maximum energy density is greater than  $5 \text{ Jcm}^{-2}$ . The laser has a very good beam profile over a 28 mm beam diameter.

The laser was developed for laser drilling and surface modification of materials.

## Use of the Facility

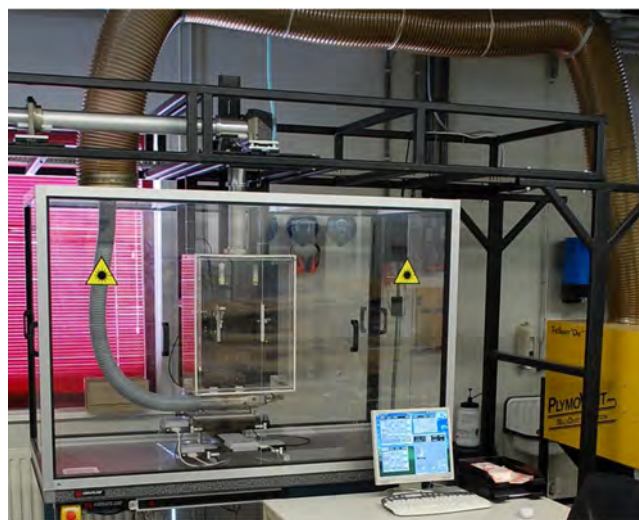
The Delft Sirius Laser Facility is open for commercial and research activities. The laser can drill many types of materials, including composites and metals, with hole sizes are in the range  $10 \mu\text{m}$  to 1 mm. The power and beam profile are adjustable for material modification. Automated stages allow controlled material modification and drilling of sample hole patterns across samples up to 500 mm length, later to be extended to 2 m.

## Our offer is

- Industry projects
- Collaboration in national and international research projects
- Education and student projects

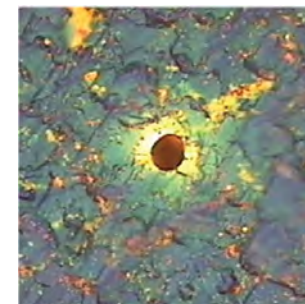


## Operation Space

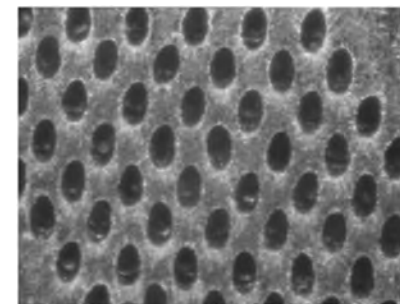


Laser processing area 1  
(maximum object dimensions are  $500 \times 200 \times 100 \text{ mm}$ )  
Beam operation area 2 for objects with dimensions  
 $2000 \times 1000 \times 500 \text{ mm}$  is under construction

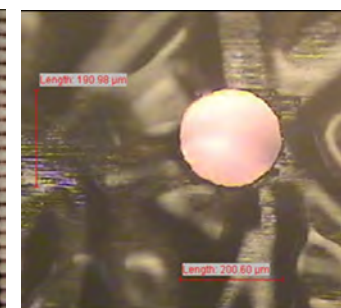
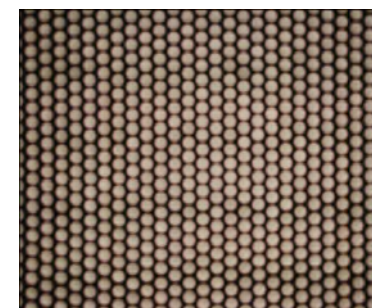
## Applications



Silicon wafer drilling



Fuel cells drilling



Acoustic damping holes drilling