Ultrafast_RAZipol Deliverable Report

Ultrafast Laser with Radial and Azimuthal Polarizations for High-efficiency Micro-machining Applications

Context		
Deliverable Title	D8.9 Project Video 2	
Organisation name of lead contractor	USTUTT	
Author(s)	Emma Bowden (KITE)	
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Approved & signed by Coordinator	Dr. Marwan Abdou-Ahmed (USTUTT)	Signature: 
Declaration	Any work or result described therein is genuinely a result of the Ultrafast_RAZipol project. Any other source will be properly referenced where and when relevant.	

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 619237

Contents

1 Introduction

The Ultrafast_RAZipol video has been put together by the Institut fuer Strahlwerkzeuge (IFSW) Universitaet Stuttgart team (USTUTT), presented and narrated by Project Coordinator Dr Marwan Abdou-Ahmed, and using media material provided by members of the Consortium.

The purpose of the video is to describe the main results of the project at its conclusion to both the public and scientific and industrial parties.

This video is complementary to D8.8 – the first project video, which describes the aims of the project, and the partners involved, in more detail.

The video is split into the following sections:

1. Project Introduction
2. Project Objectives
    a. Application 1
    b. Application 2
3. Lasers & Systems
    a. High Re Rate System
    b. Low Rep Rate System
4. Application Results
5. Conclusion

2 Presentation of the Ultrafast_RAZipol video

2.1 Project title and logo

The first shot of the video introduces the Ultrafast_RAZipol project's full title and brand logo. It also identifies that the project has received funding from the European Community's Seventh Framework Programme under Grant Agreement No 619237.

2.2 Project introduction

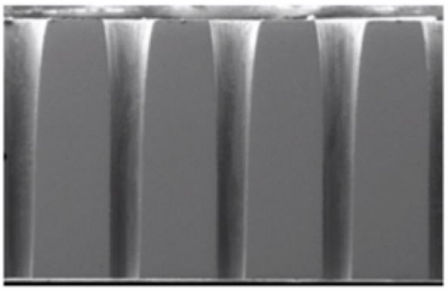
There follows a short section in which Dr Abdou-Ahmed introduces himself and the project. Dr Abdou-Ahmed narrates throughout the video and brief clips of the Dr introduce each section.

2.3 Project objectives

The overall objectives are described by Dr Ahmed-Abdou. He goes on to describe the two focus applications of the project, and the main industrial markets for them.

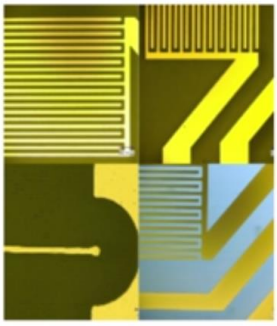
1. Application

High-aspect ratio drilling of holes



2. Application

Large area surface structuring



2.4 Lasers and systems

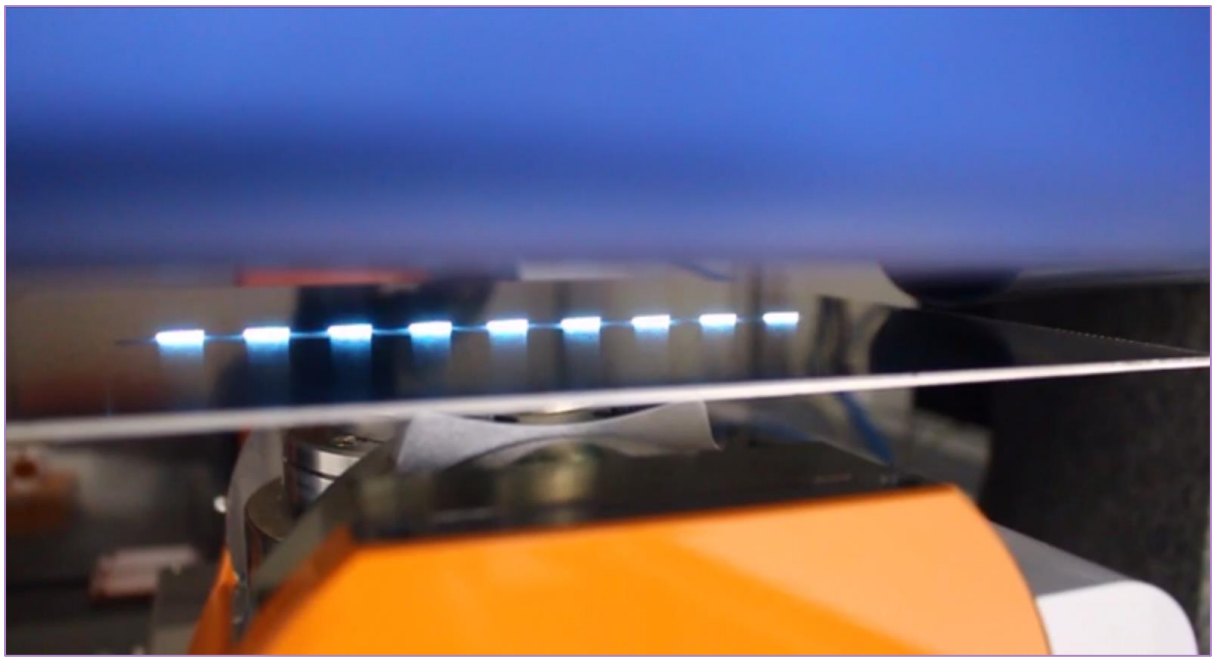
In this section the two laser systems are described in outline and shown on screen:

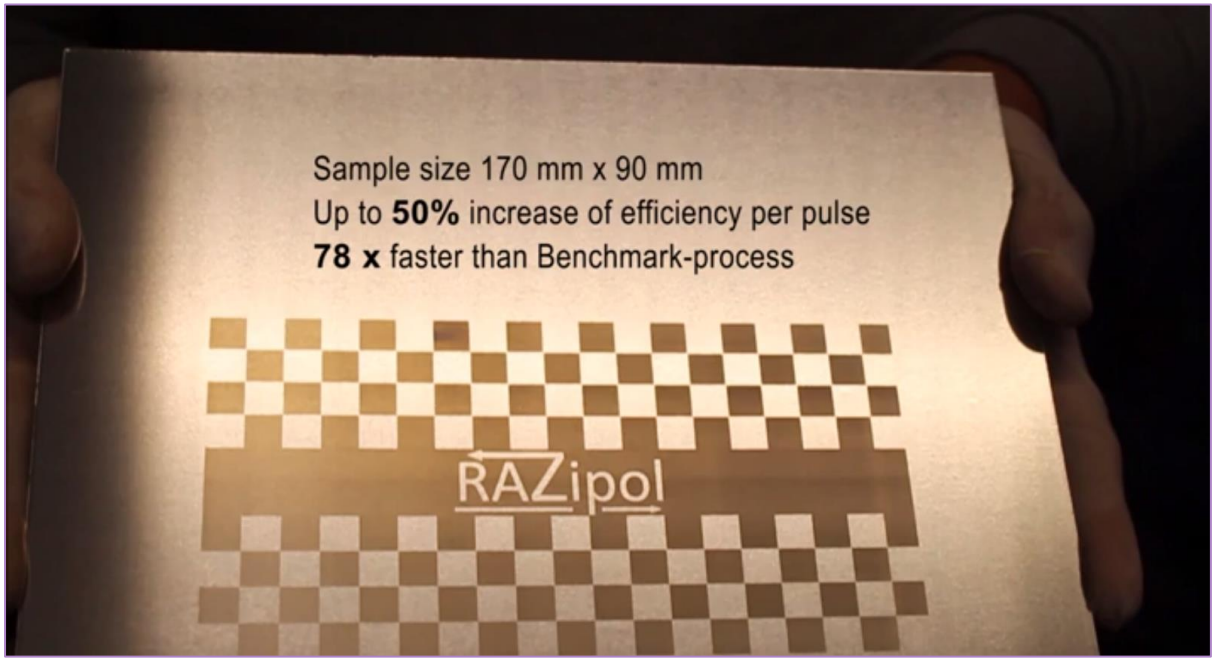
Low repetition rate laser system

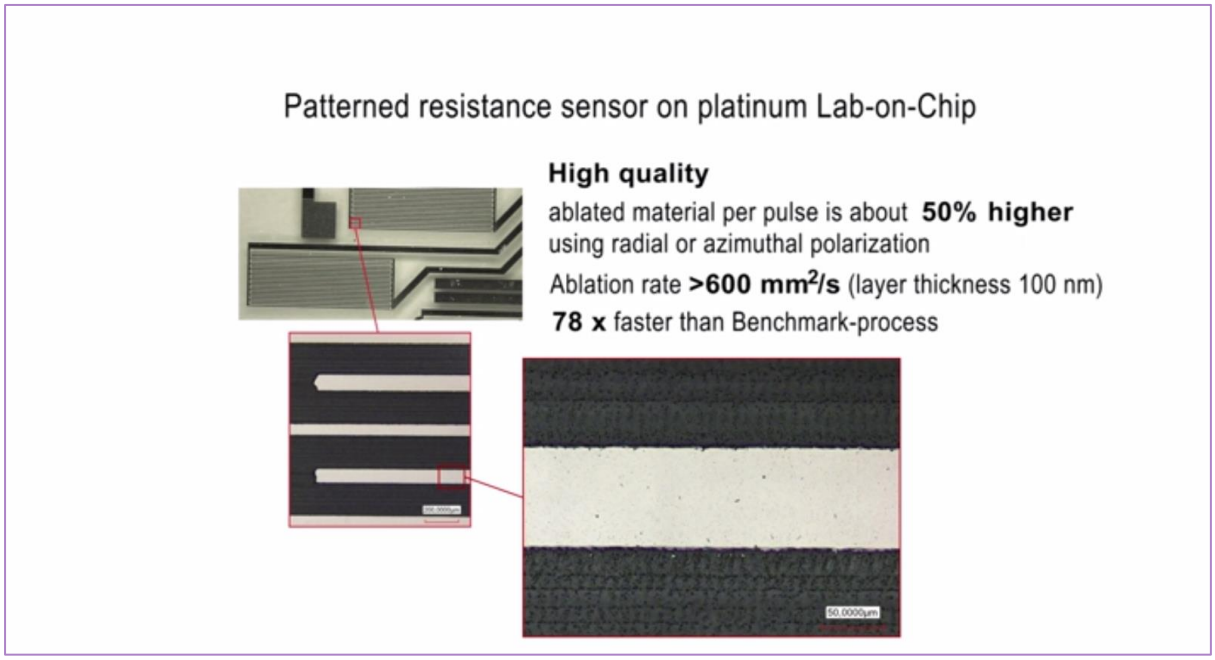
Polygon scanner inside application machine

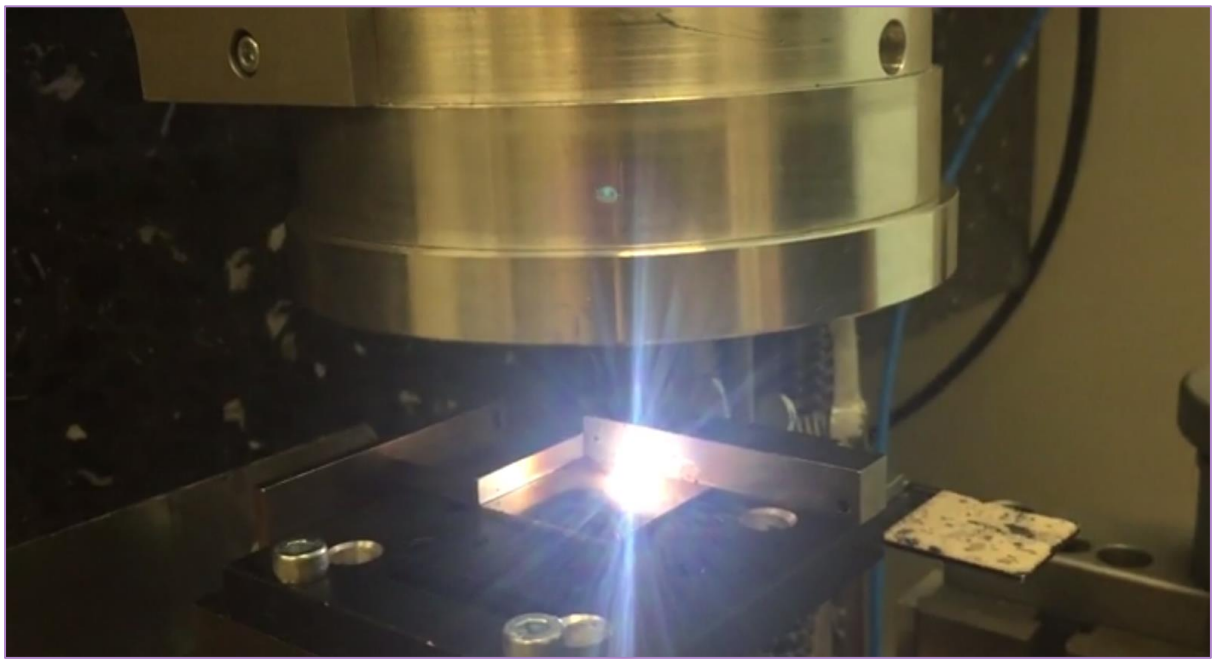
2.5 Application results

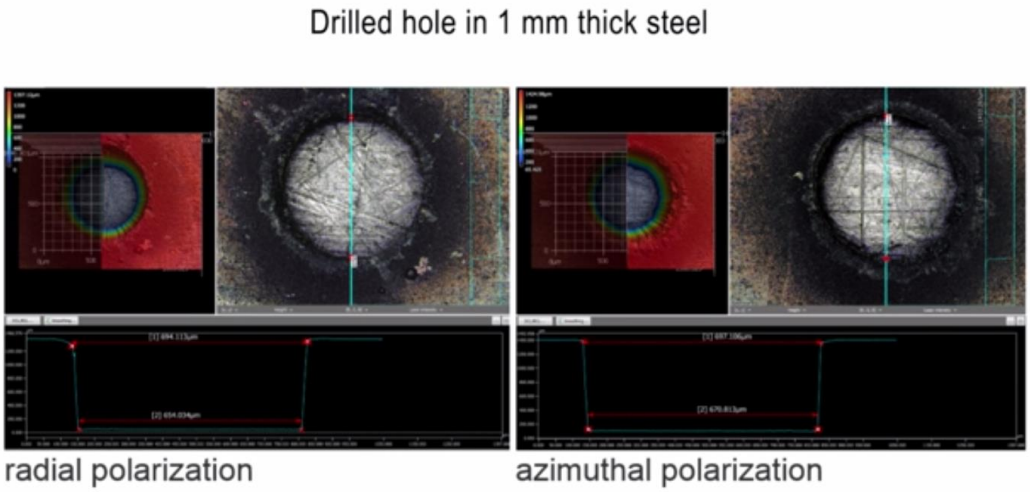
The main results from the two applications are given by Dr Abdou-Ahmed. Footage of the systems in use is shown, as are images of some test pieces which were produced.






Patterned resistance sensor on platinum Lab-on-Chip
High quality
ablated material per pulse is about 50% higher
using radial or azimuthal polarization
Ablation rate >600 mm²/s (layer thickness 100 nm)
78 x faster than Benchmark-process





2.6 Conclusion

Dr Abdou-Ahmed summarises the conclusions of the project; an image shows the details for the project website and contact details for Dr Abdou-Ahmed.

The video concludes with the partner logos and a photograph of the consortium.

3 Video availability

The video is available to the public on the project website: www.razipol.eu

and on YouTube: https://www.youtube.com/watch?v=t_fr0XwpRRM