

poliMATIC

Automated Polishing for the European Tooling Industry

# WEB Course on **AUTOMATED POLISHING**

## Lecture areas

1. Intro on tools, polishing and metrology
2. CAM NC data chain for laser polishing (WP2)
3. Knowledge based CAX framework for robot polishing (WP3)
4. Laser polishing (WP2, 4)
5. Robot Polishing (WP5)
6. Surface metrology (WP6)
7. Demonstrations (WP7)

Course co-ordinator:

prof. B.-G. Rosén at Halmstad University, Sweden  
bg.rosen@hh.se

Training Course  
designed within  
the EU project

poliMATIC

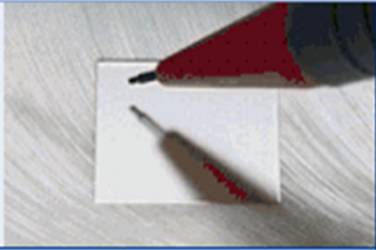


## Teachers



- ▶ 1. Svensk Industrigravyr
- ▶ 2. Hogskolan i Halmstad
- ▶ 3. Toponova
- ▶ 4. S&F Systemtechnik
- ▶ 5. Fraunhofer IPT
- ▶ 6. Fraunhofer ILT
- ▶ 7. SN-Spindeltechnik
- ▶ 8. Formtech
- ▶ 9. Maschinenfabrik Arnold
- ▶ 10. Evolute
- ▶ 11. Star-Plus
- ▶ 12. Altimet
- ▶ 13. Compes
- ▶ 14. Module Works





# WEB Course on **AUTOMATED POLISHING**

## Lecture areas –more detailed

### 1. Intro on tools, polishing and metrology

### 2. CAM NC data chain for laser polishing (WP2)

#### sub chapters:

- 2.1 Software requirements specifications for LP
- 2.2 Software prototype Technology module for laser polishing

### 3. Knowledge based CAX framework for robot polishing (WP3)

- 3.1-2 Software requirements for robot polishing
- 3.3 Software prototype for robot polishing

### 4. Laser polishing (WP2, 4)

- 4.1 Process fundamentals
- 4.2 Overview of materials suitable for laser polishing
- 4.3 Properties of laser polished surfaces
- 4.4 Processing of 3D surfaces
- 4.5 Machine technology
- 4.6 CAM-NC data chain for laser polishing
- 4.7 Possible applications
- 4.8 Publications

### 5. Robot Polishing (WP5)

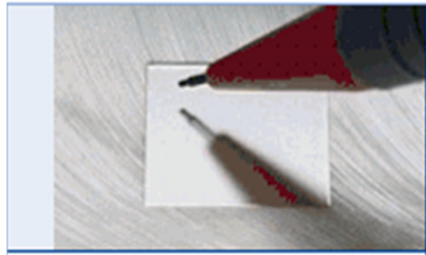
- 5.1 The polishing spindle
- 5.2 Module for translational movements
- 5.3 Fine machining tools
- 5.4 Process parameters
- 5.5 Tool wear and tool life time
- 5.6 Integrated CAD/CAM module
- 5.7 Process strategies for different tool steels
- 5.8 Process strategies for different geometrical features
- 5.9 Polished demonstrators with different processing strategies

### 6. Surface metrology (WP6)

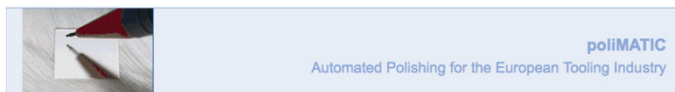
- 6.1 In-machine metrology framework
- 6.2 Metrology framework
- 6.3 Metrology assisted manual polishing (MAMP)

### 7. Demonstrations (WP7)

- 7.1 Polished dies and moulds
- 7.2 Characterisation of automated polished tools
- 7.3 Test of automated polished tools
- 7.4 Process combination Laser-robot polishing
- 7.5 Calculation of economics



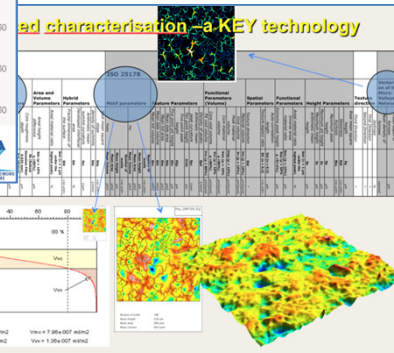
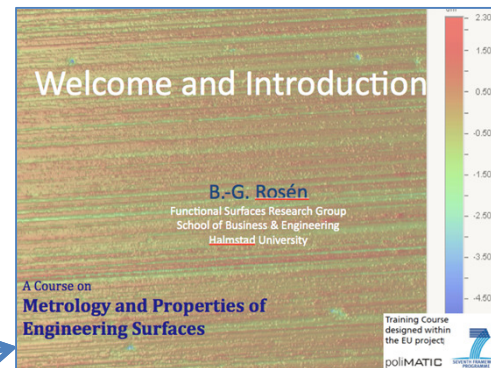
# WEB Course on **AUTOMATED POLISHING**



## WEB Course on **AUTOMATED POLISHING**

### Lecture areas –more detailed

1. Intro on tools, polishing and metrology
2. CAM NC data chain for laser polishing (WP2)
  - 2.1 Software requirements specifications for LP
  - 2.2 Software prototype Technology module for laser polishing
3. Knowledge based CAX framework for robot polishing (WP3)
  - 3.1-2 Software requirements for robot polishing
  - 3.3 Software prototype for robot polishing
4. Laser polishing
5. Robot Polishing (WPS)
  - 5.1 The polishing spindle
  - 5.2 Module for translational movements
  - 5.3 Fine machining tools
  - 5.4 Process parameters
  - 5.5 Tool wear and tool life time
  - 5.6 Integrated CAD/CAM module
  - 5.7 Process strategies for different tool steels
  - 5.8 Process strategies for different geometrical features
  - 5.9 Polished demonstrators with different processing strategies
7. Demonstrator requirements
  - 7.1 Polished dies and moulds
  - 7.2 Characterisation of automated polished tools
  - 7.3 Test of automated polished tools
  - 7.4 Process combination Laser-robot polishing
  - 7.5 Calculation of economics



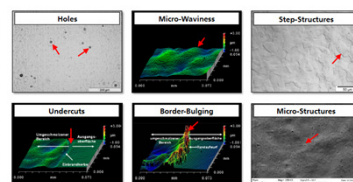
### Training Course – Automated Polishing Laser Polishing of Metals

Fraunhofer-Institut für Lasertechnik ILT  
Steinbachstraße 15  
52074 Aachen  
Dr. Edgar Willenborg  
+49 (0) 241 / 8906 - 213  
edgar.willenborg@ilt.fraunhofer.de



Training Course  
designed within  
the EU project  
poliMATIC

### Overview of Surface Structures Micro Polishing





# WEB Course on **AUTOMATED POLISHING**

Adobe Connect, a robust platform

Just login on

<https://connect.sunet.se/polimatic/>

The screenshot displays the Adobe Connect web interface for a course titled "WEB Course on **AUTOMATED POLISHING**". The interface is divided into several sections:

- Meeting Information:** Located on the left, it provides details about the meeting, including the name "EU project poliMATIC Training course AREA", the summary "A course area for the EU programme poliMATIC FP 7", the start time "05/21/2013 12:00 PM", duration "01:00", URL "https://connect.sunet.se/polimatic/", and the passcode protection status "No".
- Meeting Content:** The main area displays the course content, which is organized into a list of topics and sub-topics. The topics are: 1. Intro on tools, polishing and metrology; 2. CAM NC data chain for laser polishing (WP2); 3. Knowledge based CAX framework for robot polishing (WP3); 4. Laser polishing (WP2, 4); 5. Robot Polishing (WP5); 6. Surface metrology (WP6); 7. Demonstrations (WP7).
- Video:** A video feed of the presenter, Bengt-Göran Rosen, is visible in the top right corner.
- Attendees:** A list of attendees is shown in the bottom right corner, including the presenter and participants.
- Chat:** A chat window is located in the bottom right corner, showing the message "Bengt-Göran Rosen: Hello all".

The interface also includes a navigation bar at the top with links to Home, Content, Meetings, Reports, and Administration. The bottom of the screen shows a Mac OS X dock with various application icons.

# WEB Course on **AUTOMATED POLISHING**

Adobe Connect, a robust platform

The screenshot shows a web browser window with the title "EU project poliMATIC Training course AREA (Sharing) - Adobe Connect". The main content area displays a slide titled "Training Course – Automated Polishing" with the subtitle "Laser Polishing of Metals". The slide includes contact information for Fraunhofer-Institut für Lasertechnik ILT, Dr. Edgar Willenborg, and logos for poliMATIC and the Seventh Framework Programme. Below the slide is a row of images showing various polished metal parts and a laser polishing machine. The right sidebar contains a video feed of a man, a list of attendees, a chat window, and a notes section. The bottom of the browser window shows a Mac OS X dock with various application icons.

Skärmavbildning Arkiv Redigera Avbilda Fönster Hjälp

EU project poliMATIC Training course AREA (Sharing) - Adobe Connect

Support Meeting Layouts Pods Audio

WebCourse Laser polishing poliMATIC v1.pdf

## Training Course – Automated Polishing

### Laser Polishing of Metals

**Fraunhofer-Institut für Lasertechnik ILT**  
Steinbachstraße 15  
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**Dr. Edgar Willenborg**  
+49 (0) 241 / 8906 - 213  
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Training Course  
designed within  
the EU project

poliMATIC

SEVENTH FRAMEWORK  
PROGRAMME

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arnold  
RAVENSBURG

S&F  
Systemtechnik GmbH

Fraunhofer  
ILT

## AGENDA

Video

Stop My Webcam

Bengt-Göran Rosen

Attendees (1)

Hosts (1)

Bengt-Göran Rosen

Presenters (0)

Participants (0)

Chat (Everyone)

Bengt-Göran Rosen: Hello all

Everyone

Notes

11 / 62

150%

Sync