

EPIC New Product Release 2024



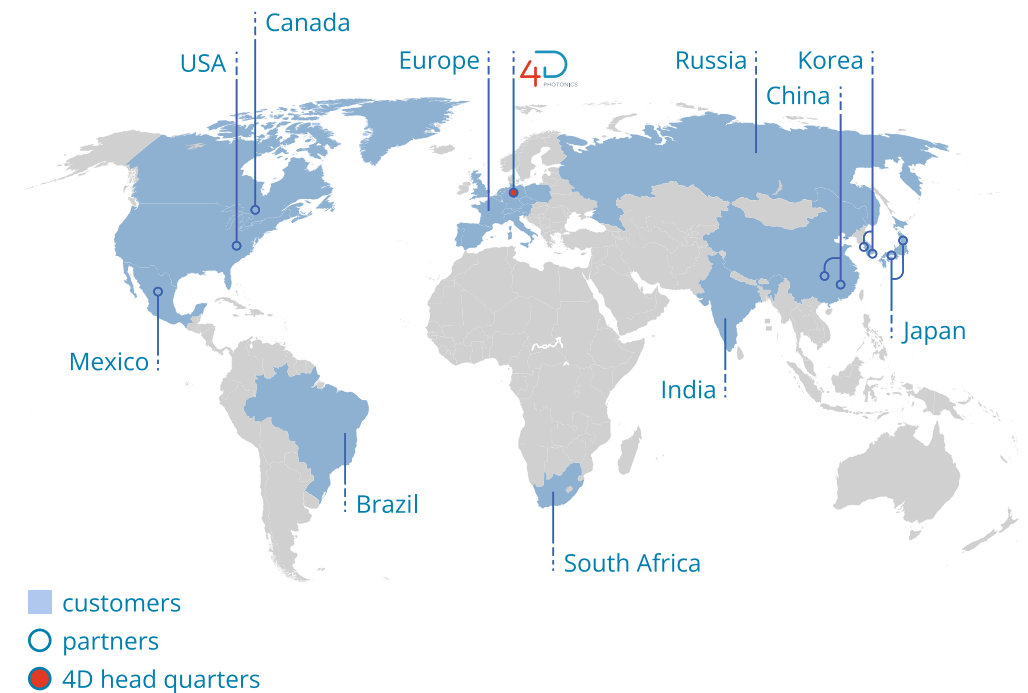
4D.TWO

Multi-spectral Monitoring System for Laser Processes

Dr. Sören Hollatz

4D COMPANY PROFILE

HEADQUARTER	Isernhagen (Hannover)
EXPERIENCE	founded in 1995
PRODUCTS	process monitoring, process optimization & technical consulting
SALES/SERVICE	worldwide network ~20 field engineers
SERVICE	Hotline / remote-access, on-site support worldwide
CUSTOMERS	Automotive, e-Mobility, electronic components, kitchen equipment, ...
SIZE	We are a company of DIH, Deutsche Industrie Holding. ~170 employees ~EUR 50 million turnover



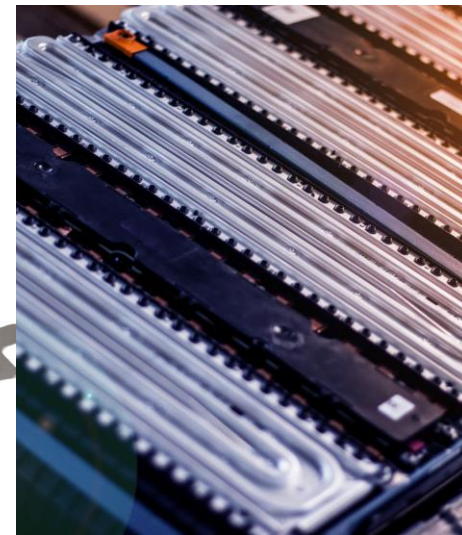
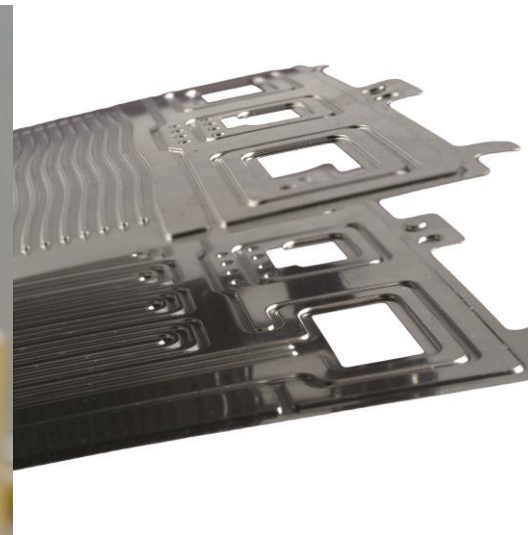
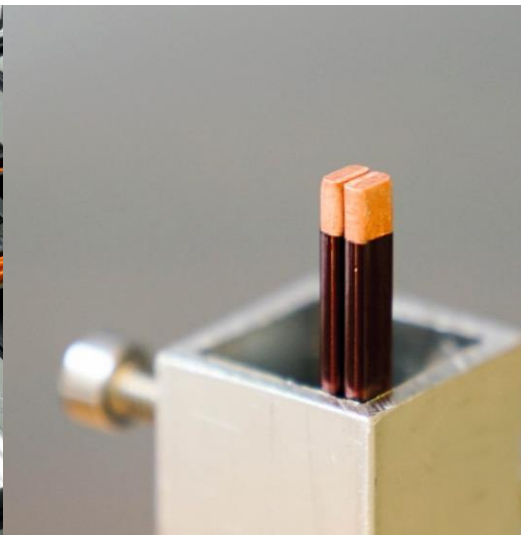


YOUR APPLICATION

Battery cell
Hairpin welding
Bipolar plates
E-mobility
Hydrogen
3D printing
Fuel cell

Structuring
Automotive
Aviation
Heat treatment
Copper welding
LPBF
Medical products

Cleaning
Electric components
Glas cutting
Application
Laser bonding
Drilling
Brazing



OUR MAJOR GOALS FOR YOUR APPLICATIONS

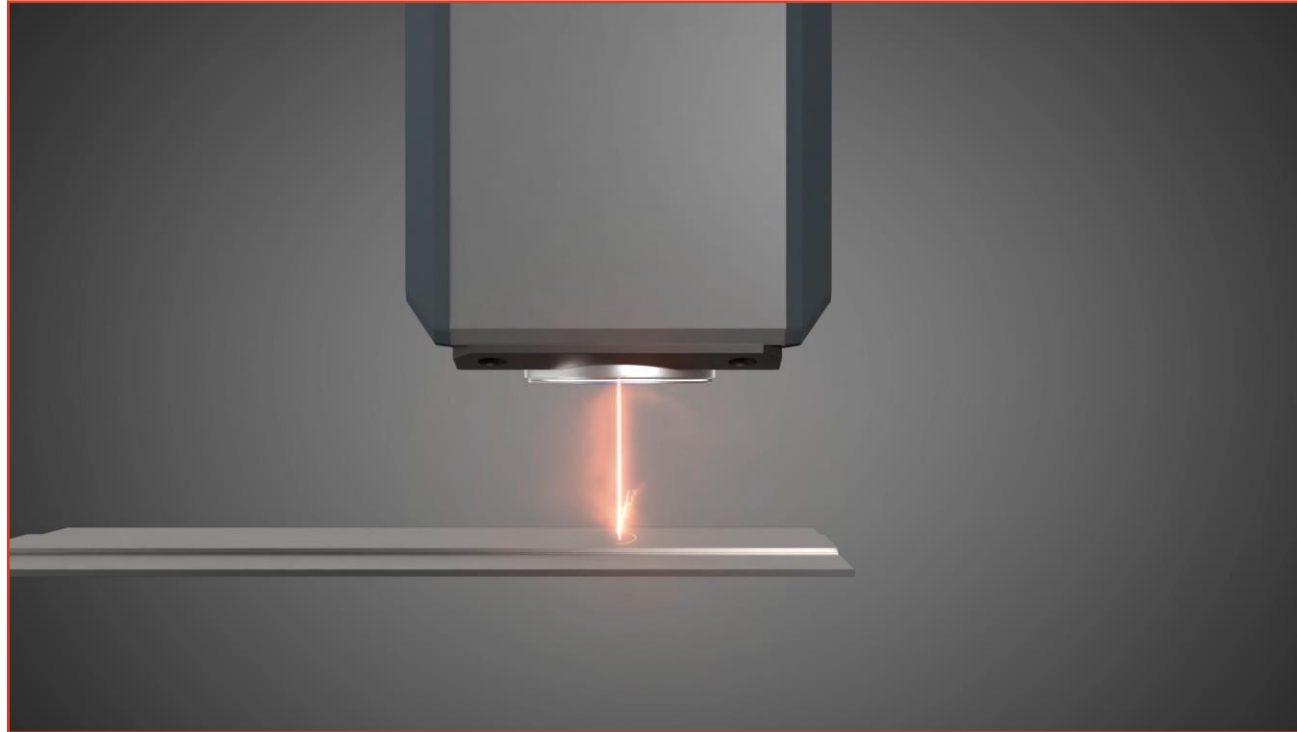
1

Increase Process Monitoring Accuracy
→ Pseudo faults are super painful!

2

Classify faults
→ Looking for root causes in production is annoying!

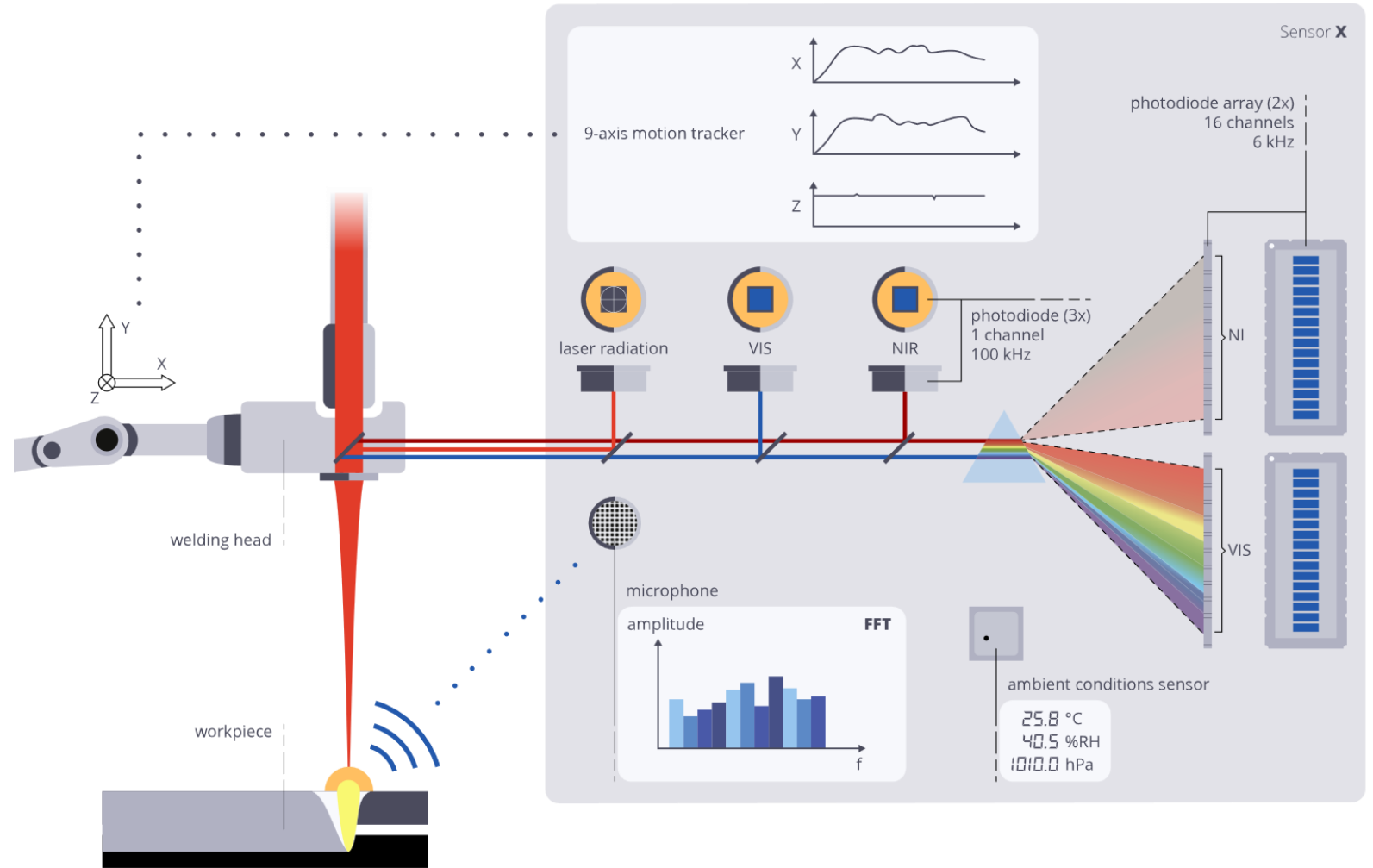
VIDEO



4D.TWO | SOME FACTS



> 1 M samples/s

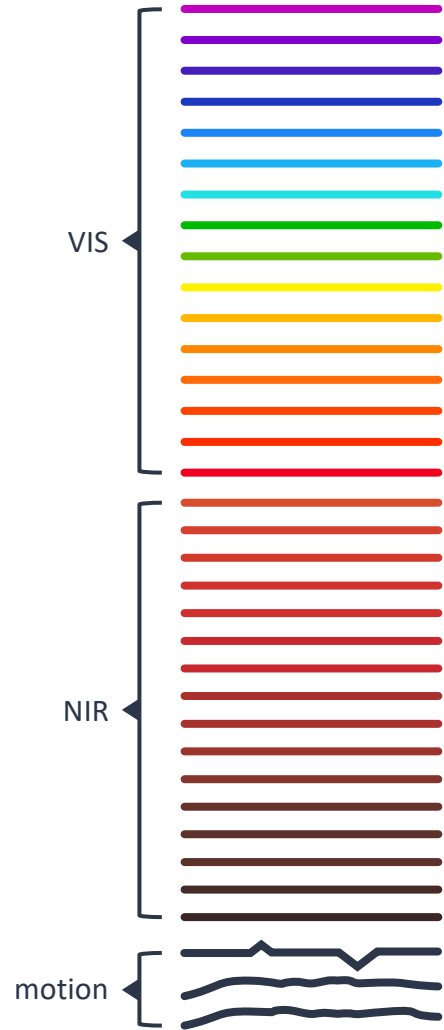


WHAT'S THE BENEFIT?



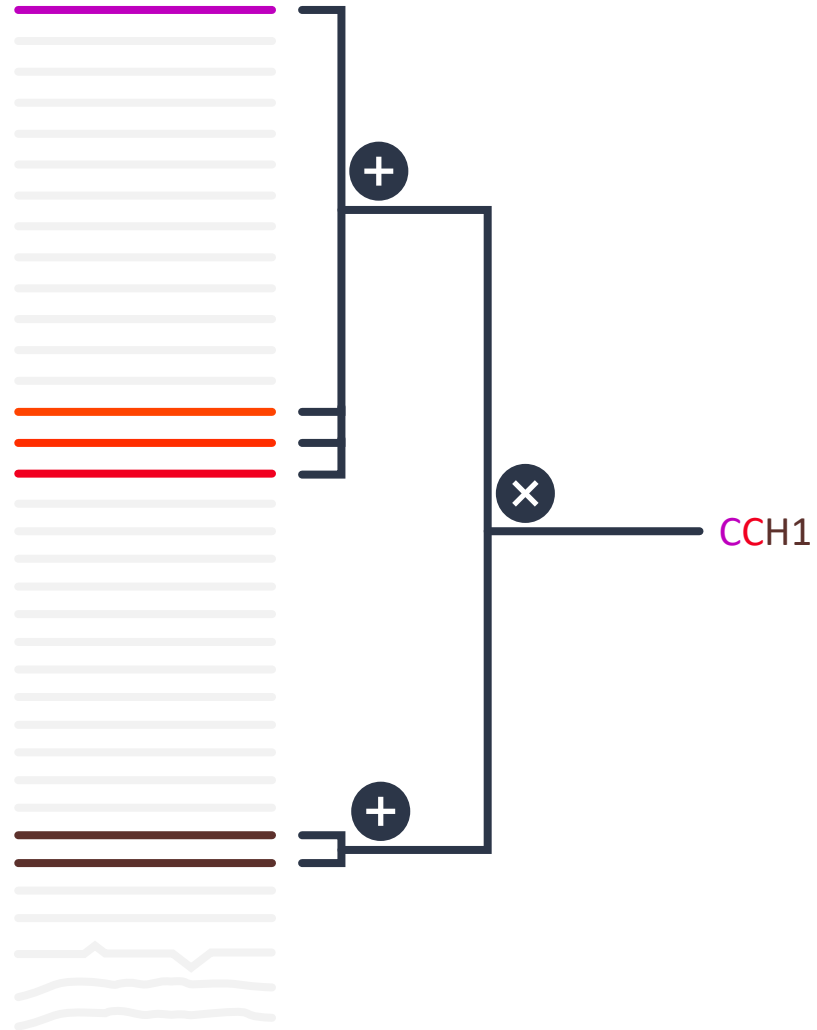


YOUR KNOWLEDGE



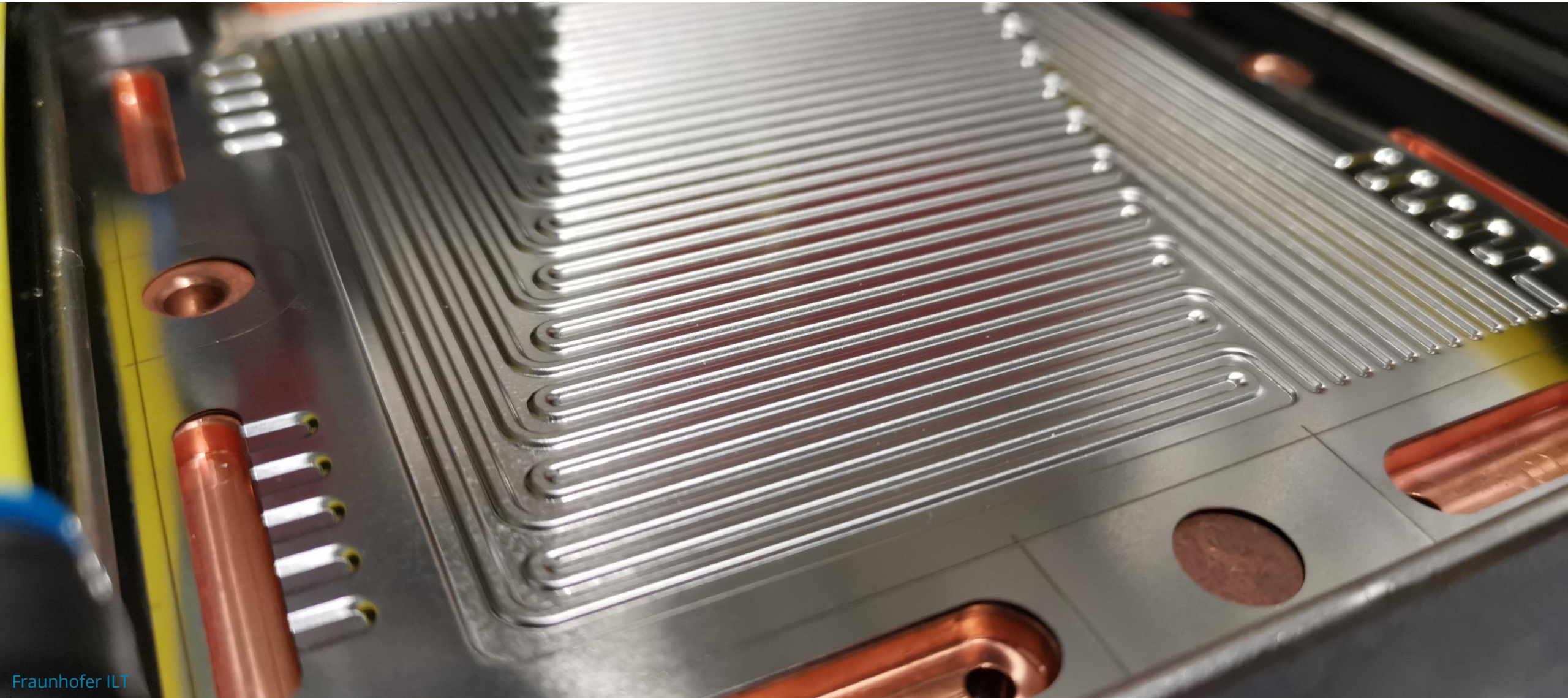


> Combined channel

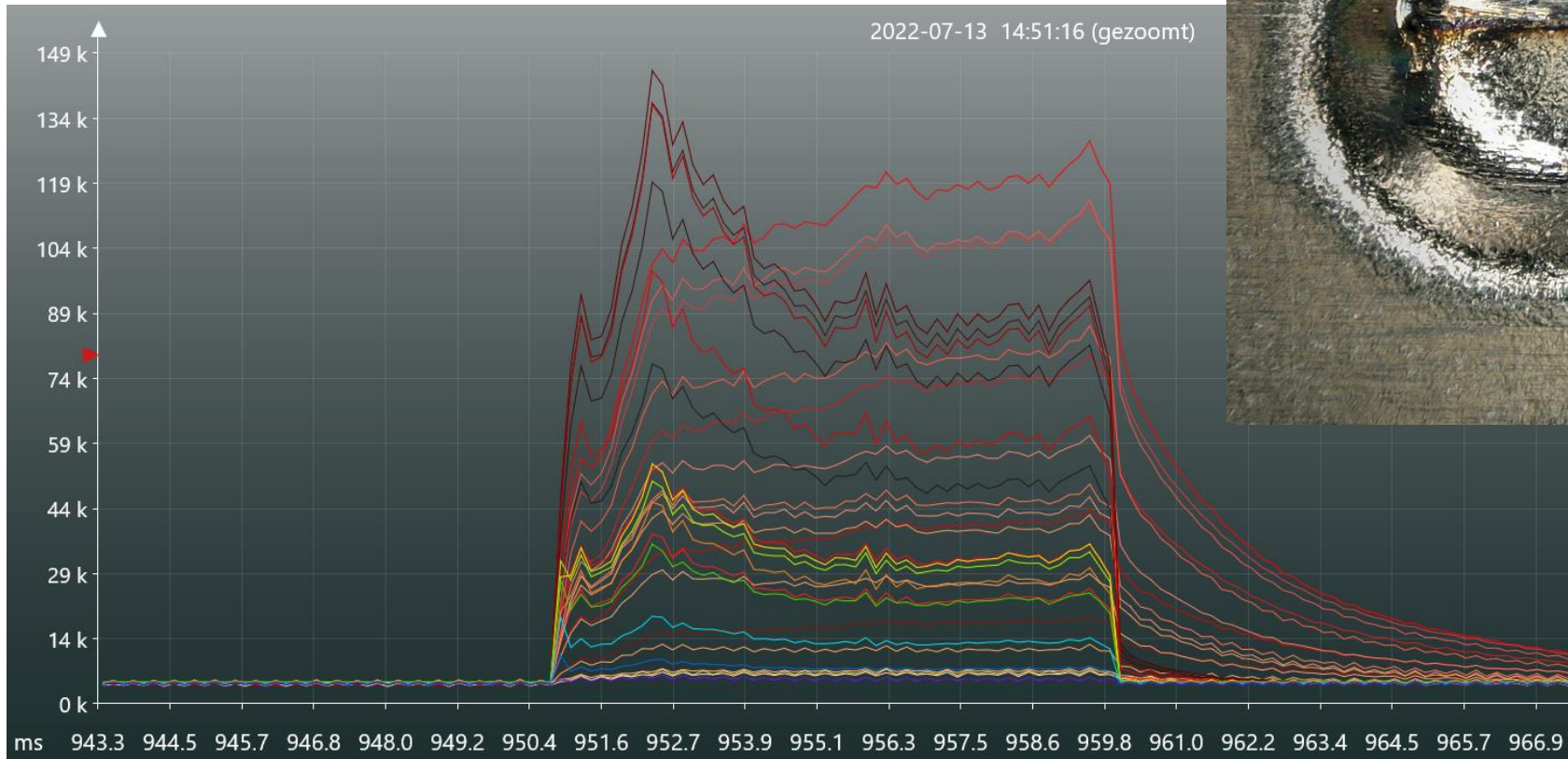


RESULTS WITH 4D.TWO

Bipolar Plates



4D.TWO | EXAMPLE



SUMMARY



- 4D.TWO: Multi-spectral monitoring system for laser processes
- ONE sensor for all applications
- Flexible combination of channels for advanced analysis
- Detection and classification of welding failures
- Successful usage in bipolar plate welding

Thanks.

DANKE!

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NOT THE ANSWER TO LIFE, THE UNIVERSE AND EVERYTHING.