



# Compact solid - state pulsed laser for calibration of the GVD data acquisition system

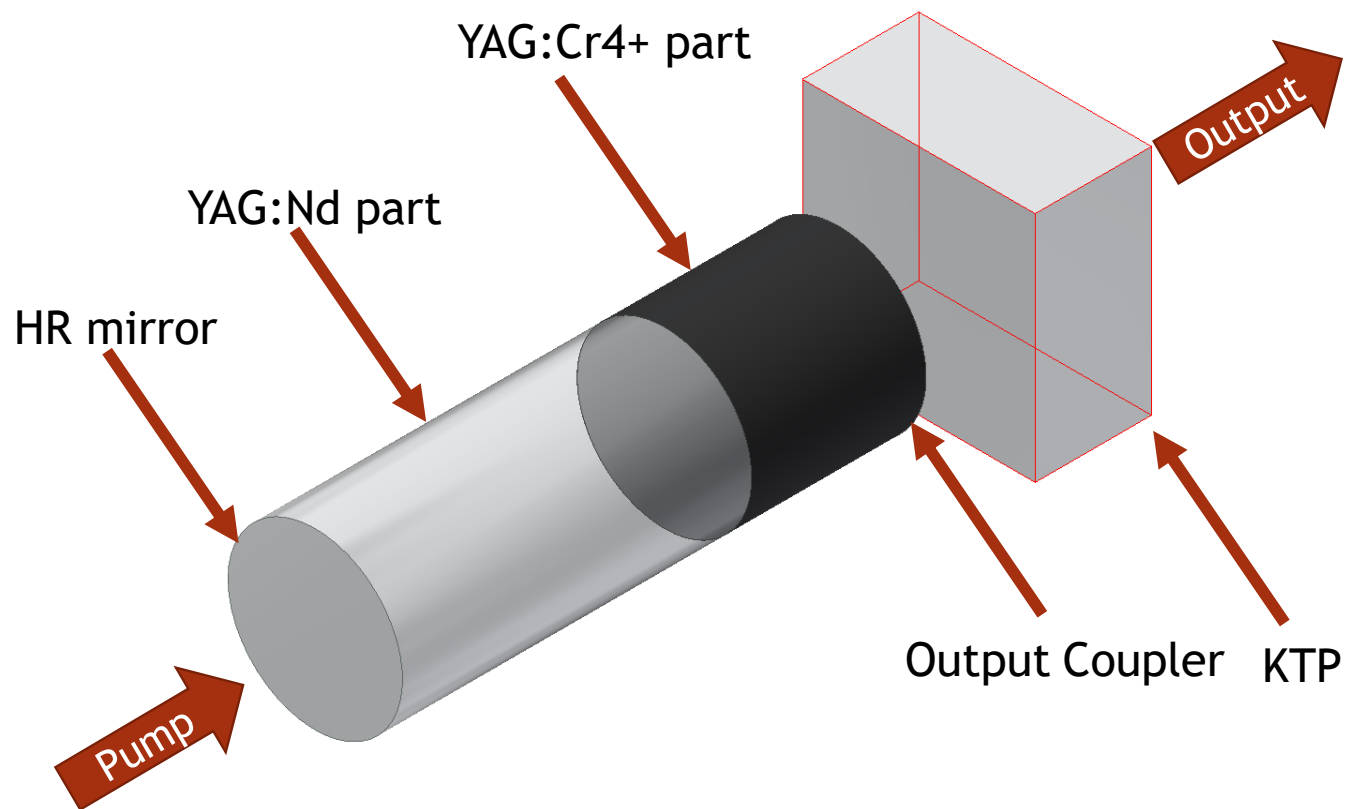
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LLC SIC "ELS-94"

# Requirements for laser source

- Short pulse ( $<1\text{ns}$ )
- Peak power  $> 100\text{kW}$
- Wavelength fits the window of transparency of water

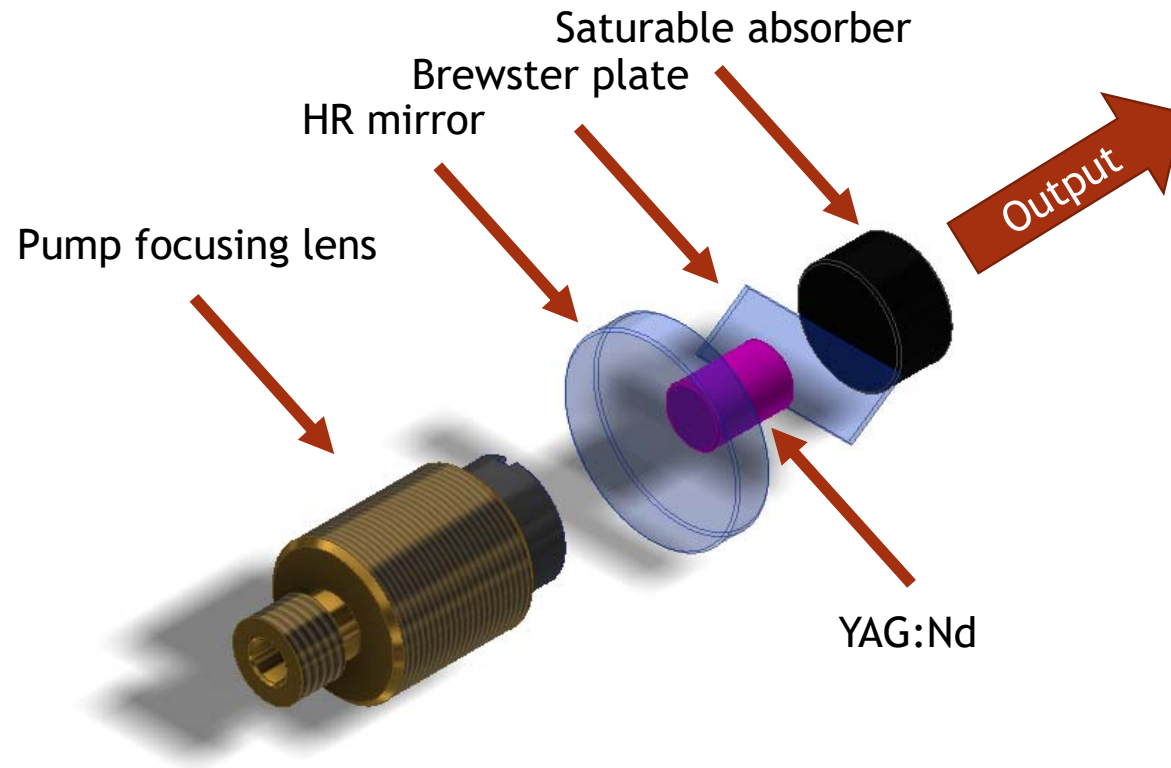
# Microchip laser



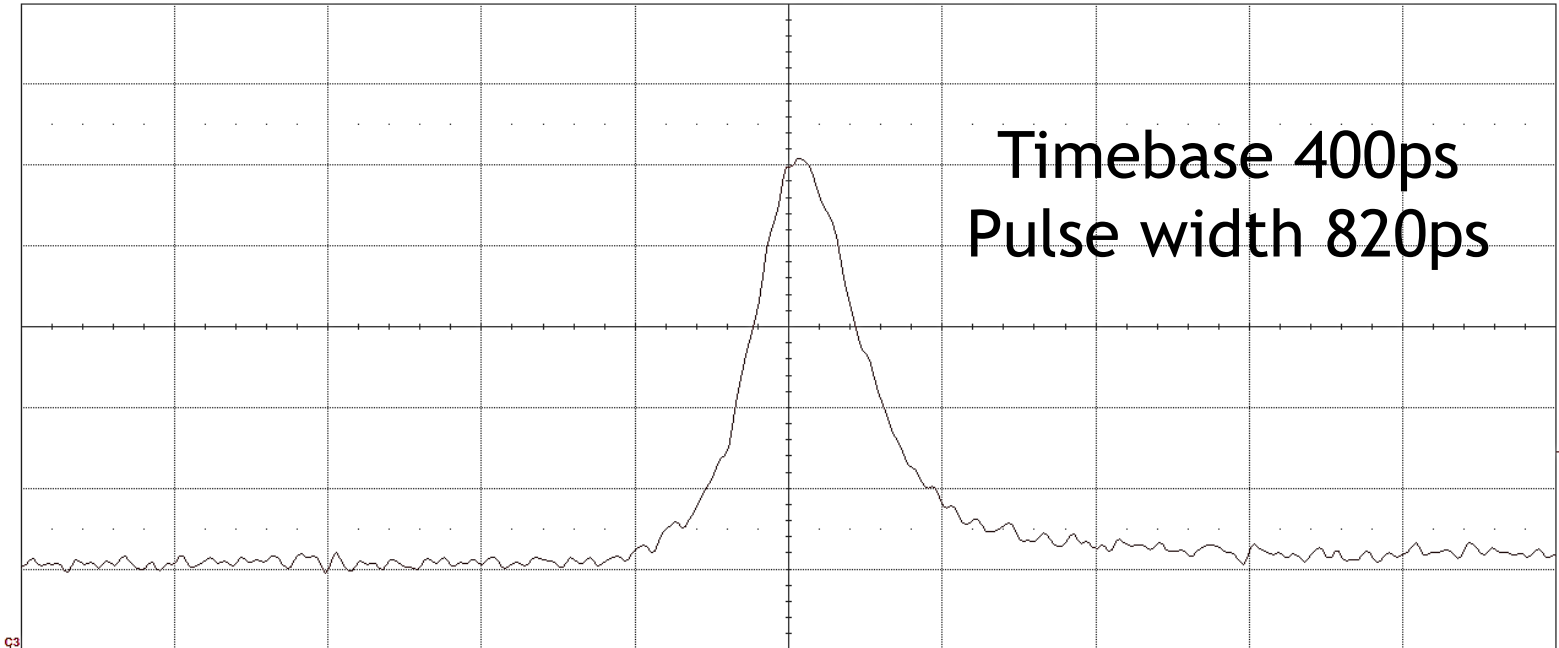
# Microchip laser

PROs	CONS
<ul style="list-style-type: none"><li>✓ Simple design</li><li>✓ Great reliability</li></ul>	<ul style="list-style-type: none"><li>✓ Instability</li></ul>

# Scheme of the laser



Timebase 400ps  
Pulse width 820ps



StdHor	P1:rise(C3)	P2:fall(C3)	P3:period(C3)	P4:freq(C3)	P5:width(C3)	P6:duty(C3)	P7:delay(C3)	P8:npoints(C3)	P9:---	P10:---	P11:---	P12:---
value	758 ps	1.094 ns	—	—	825.9 ps	—	110.0 ps	400				
mean	653.83 ps	1.1035 ns	—	—	819.74 ps	—	116.94 ps	400.00000				
min	507 ps	805 ps	—	—	766.4 ps	—	-79.6 ps	400				
max	788 ps	1.544 ns	—	—	1.0274 ns	—	187.4 ps	400				
sdev	47.63 ps	107.3 ps	—	—	28.69 ps	—	30.70 ps	0				
num	471	471	0	0	471	0	471	471				
status	✘	✘	✘	✘	✘	✘	✔	✔				

C3 DCS0  
10.0 mV/div  
-192.80 mV  
TELEDYNE LECROY

Timebase -400 ps Trigger C3 DC  
1.00 ns/div Norm. 177.3 mV  
400 S 40 GS/s Edge Positive  
04.04.2016 17:26:24

# CAD model of the laser head

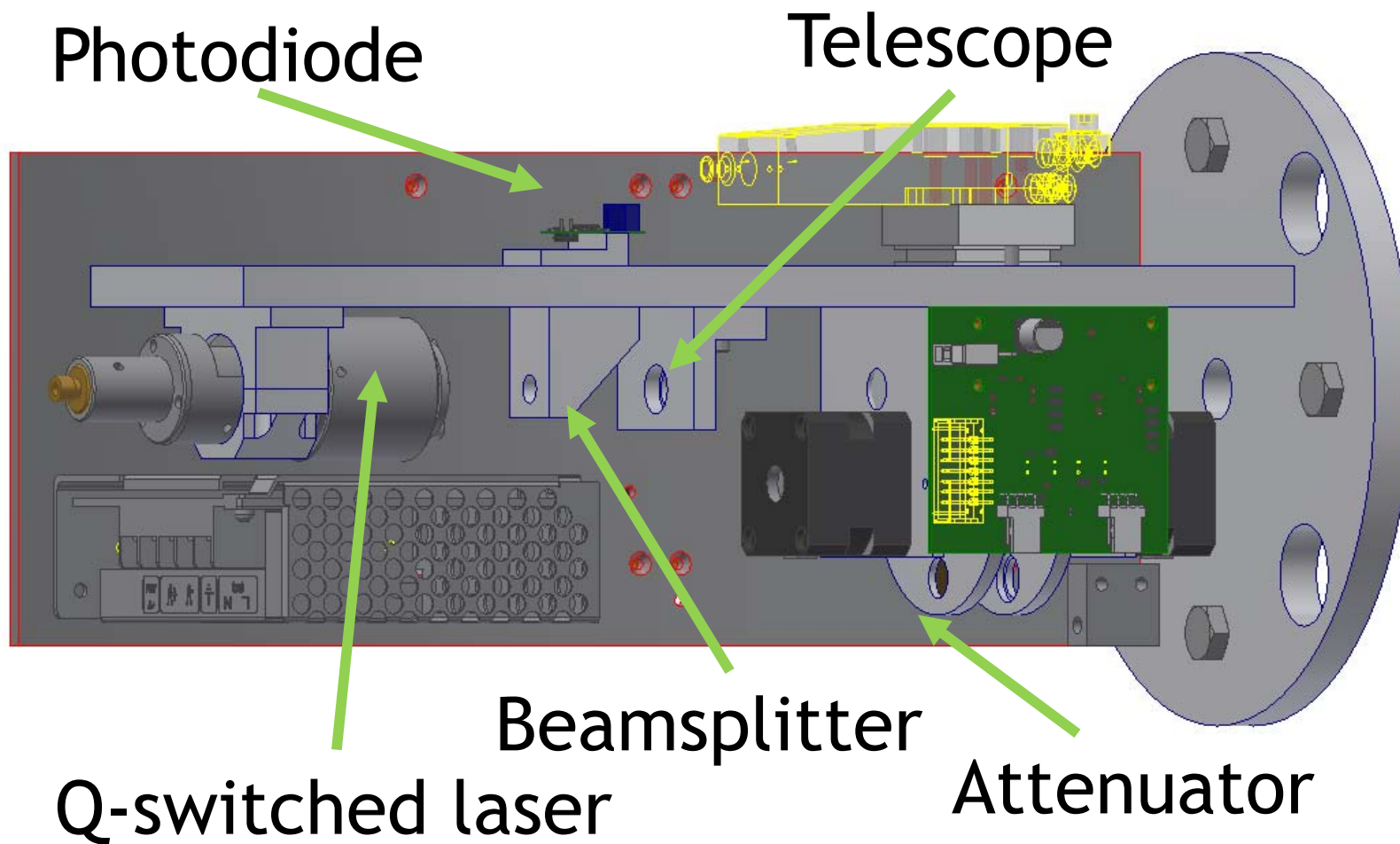


# Photo of the laser head

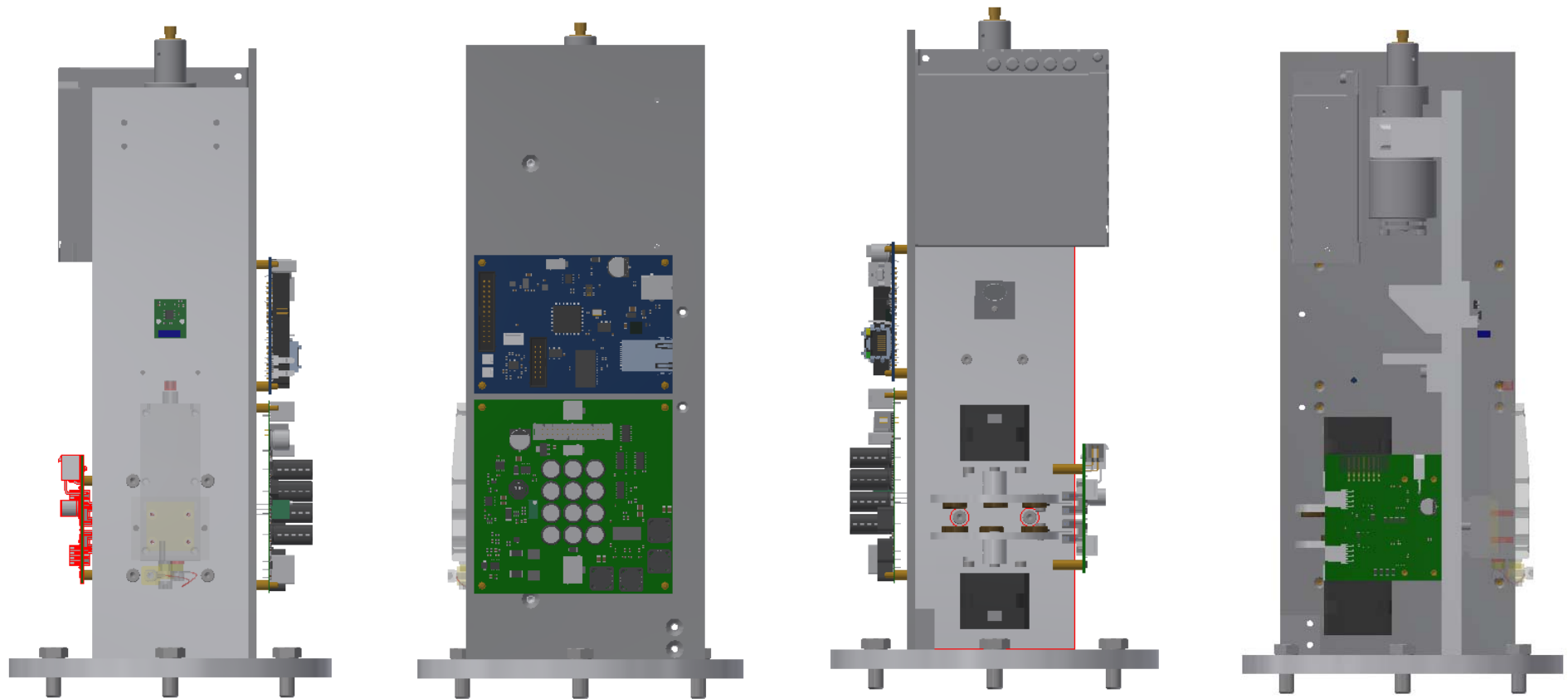




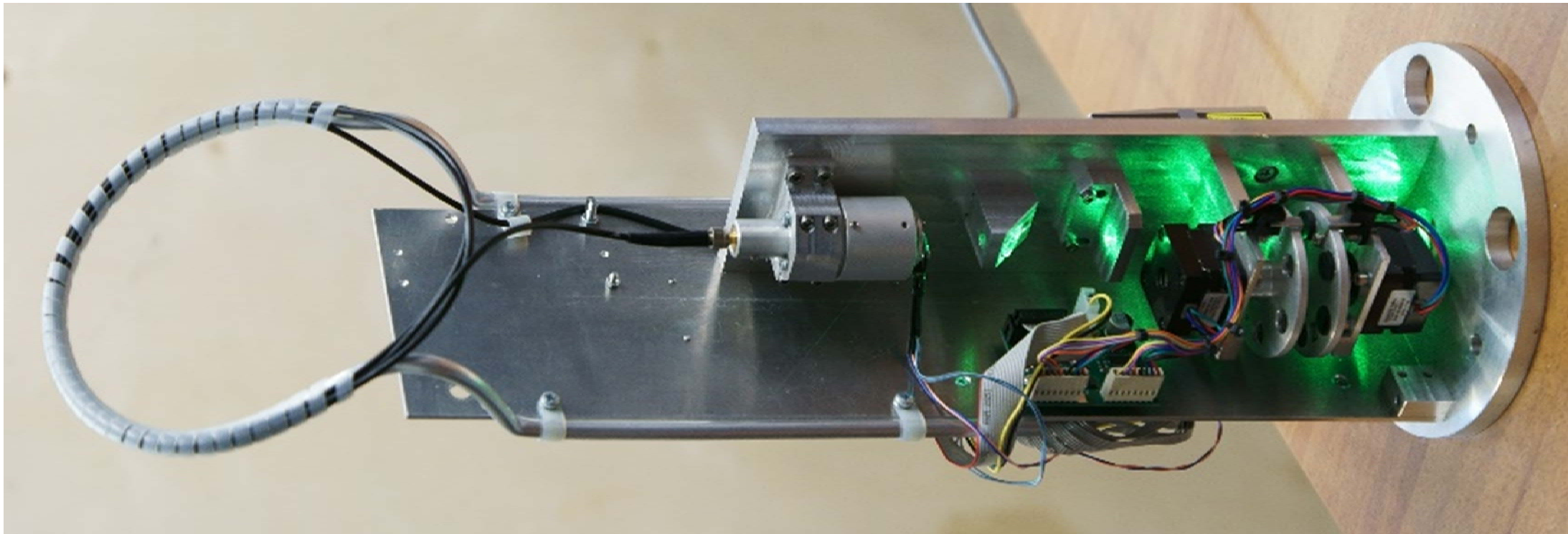
# Scheme of the pulsed laser source



# CAD model of the pulsed laser source



# Photo of the pulsed laser source



**Thank You!**



Wavelength: 1064nm

Energy: >1 mJ

Pulse width: <1ns

Frequency: up to 300Hz

Wavelength: 532nm

Energy: >0,5mJ

Pulse width: <1ns

Frequency: up to 300Hz