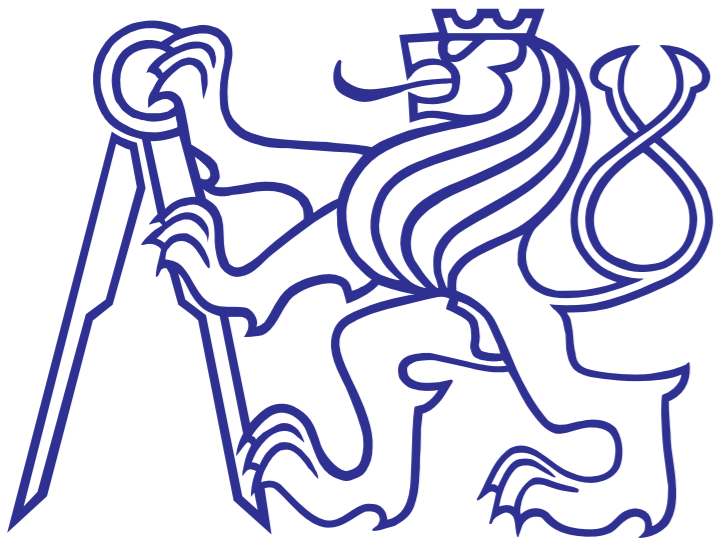


Nanosecond pulses at 1.3 μm obtained from Nd:YAG/V:YAG microchip laser



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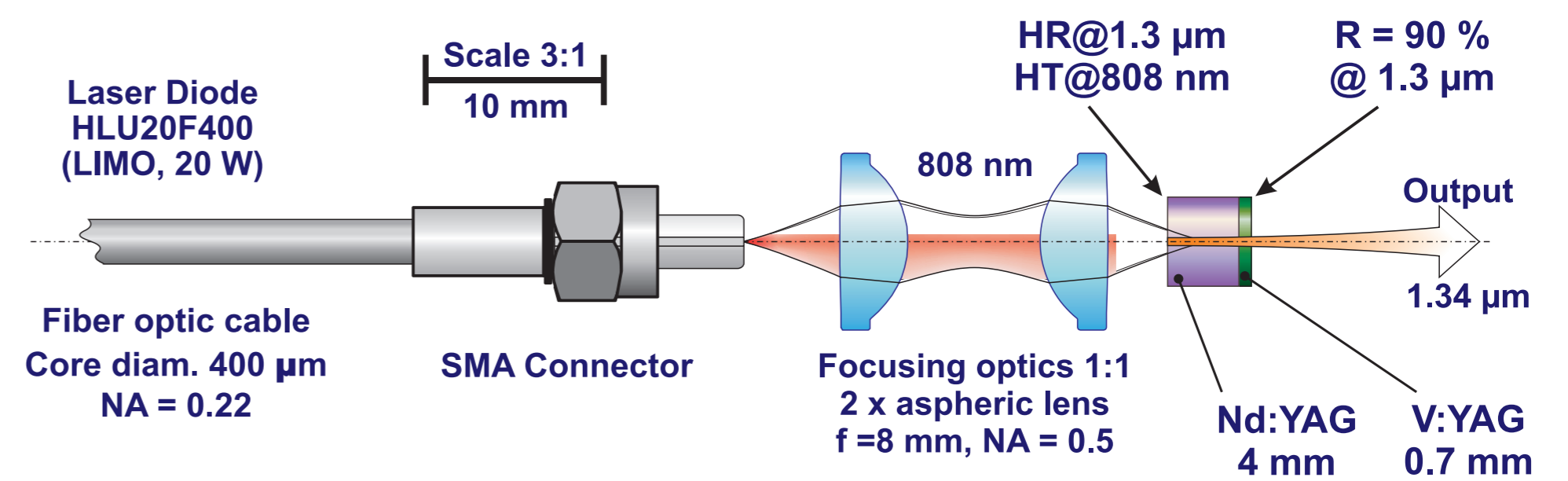
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Introduction

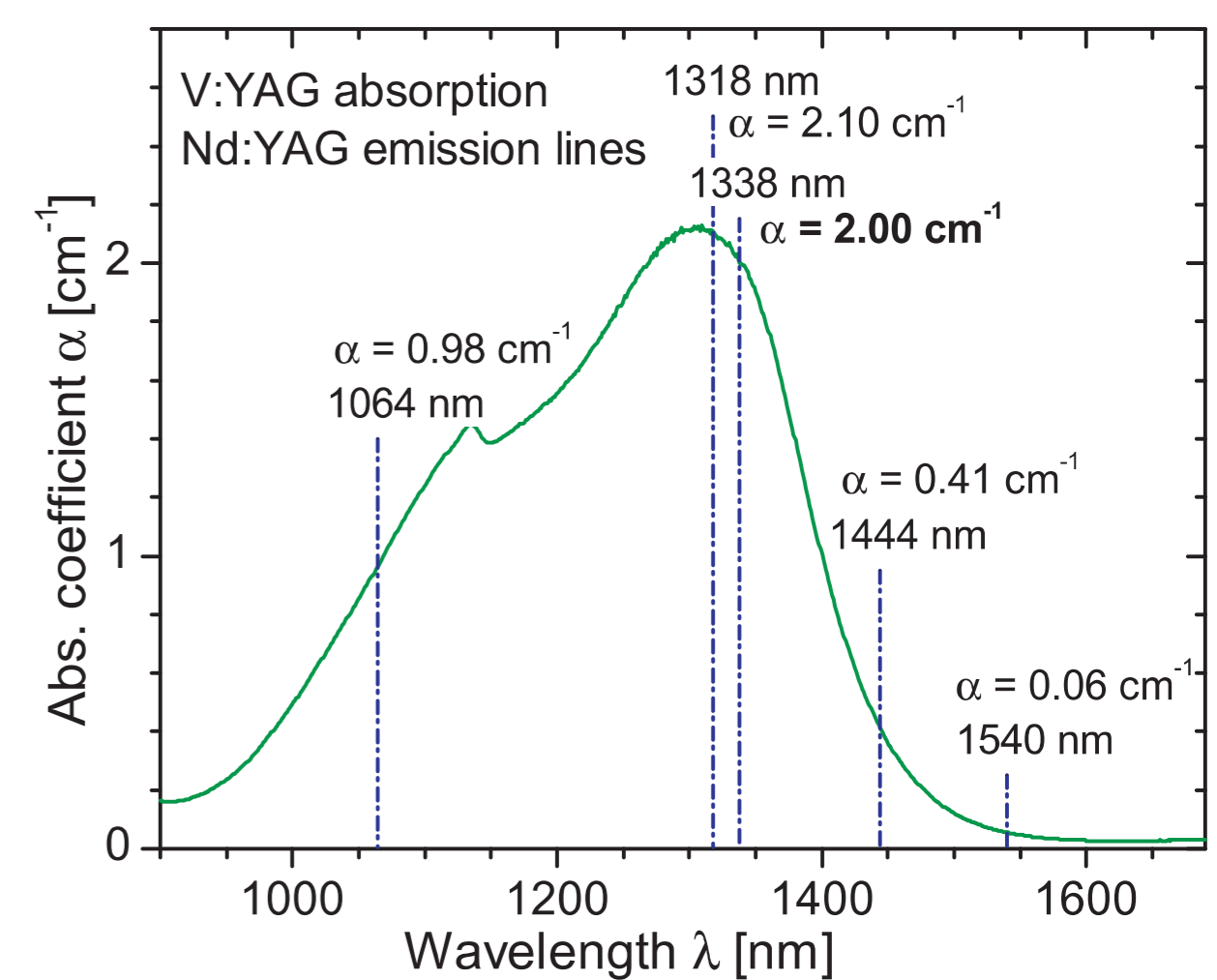
Diffusion bounded Nd:YAG/V:YAG crystal was used for construction of longitudinally diode pumped Q-switched microchip laser operating at wavelength 1.3 μm . The stable Q-switched linearly polarized output with length of pulses 1.6 ns and peak power 19 kW was obtained.

Experimental Arrangement

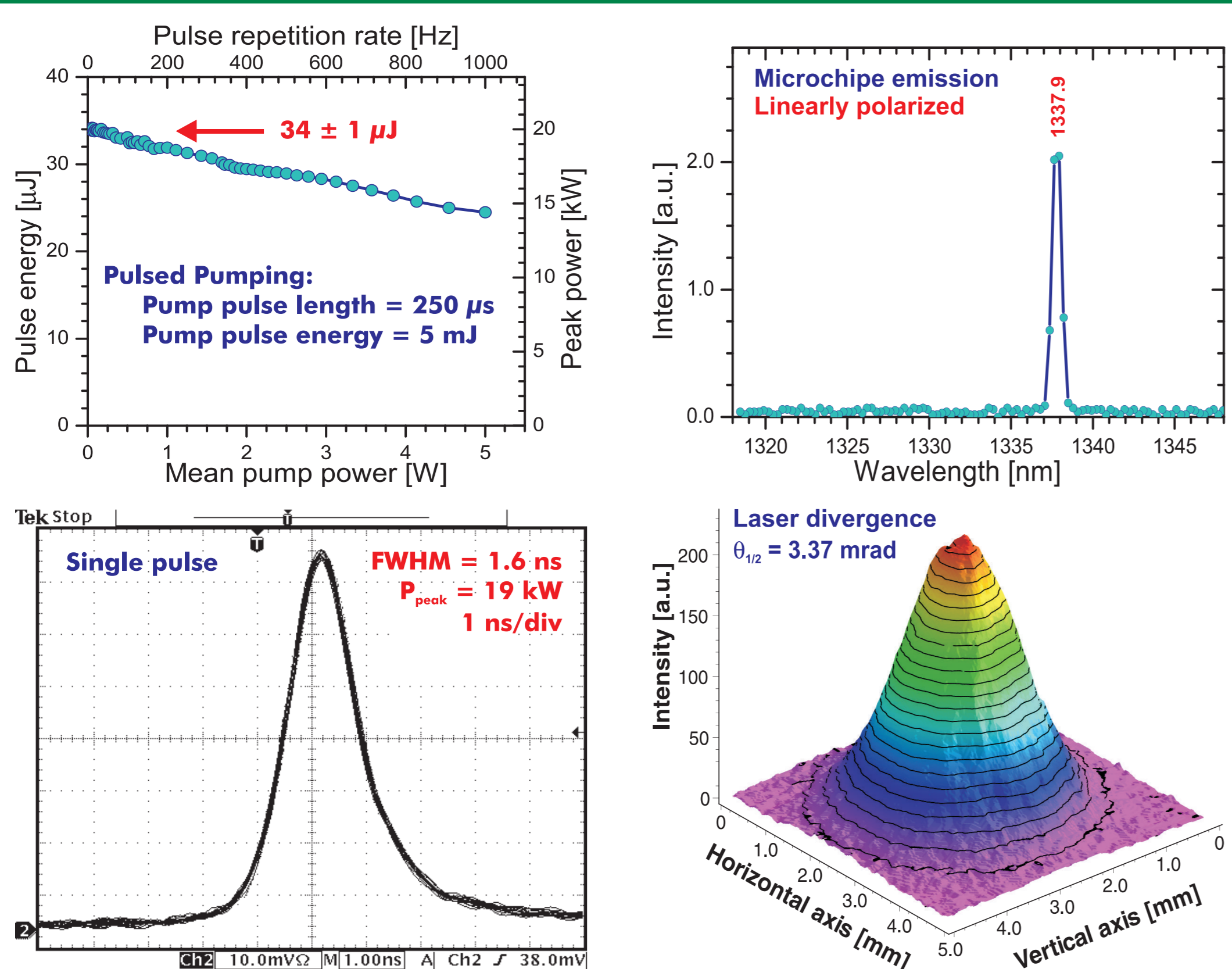


Nd:YAG/V:YAG Microchip Crystal

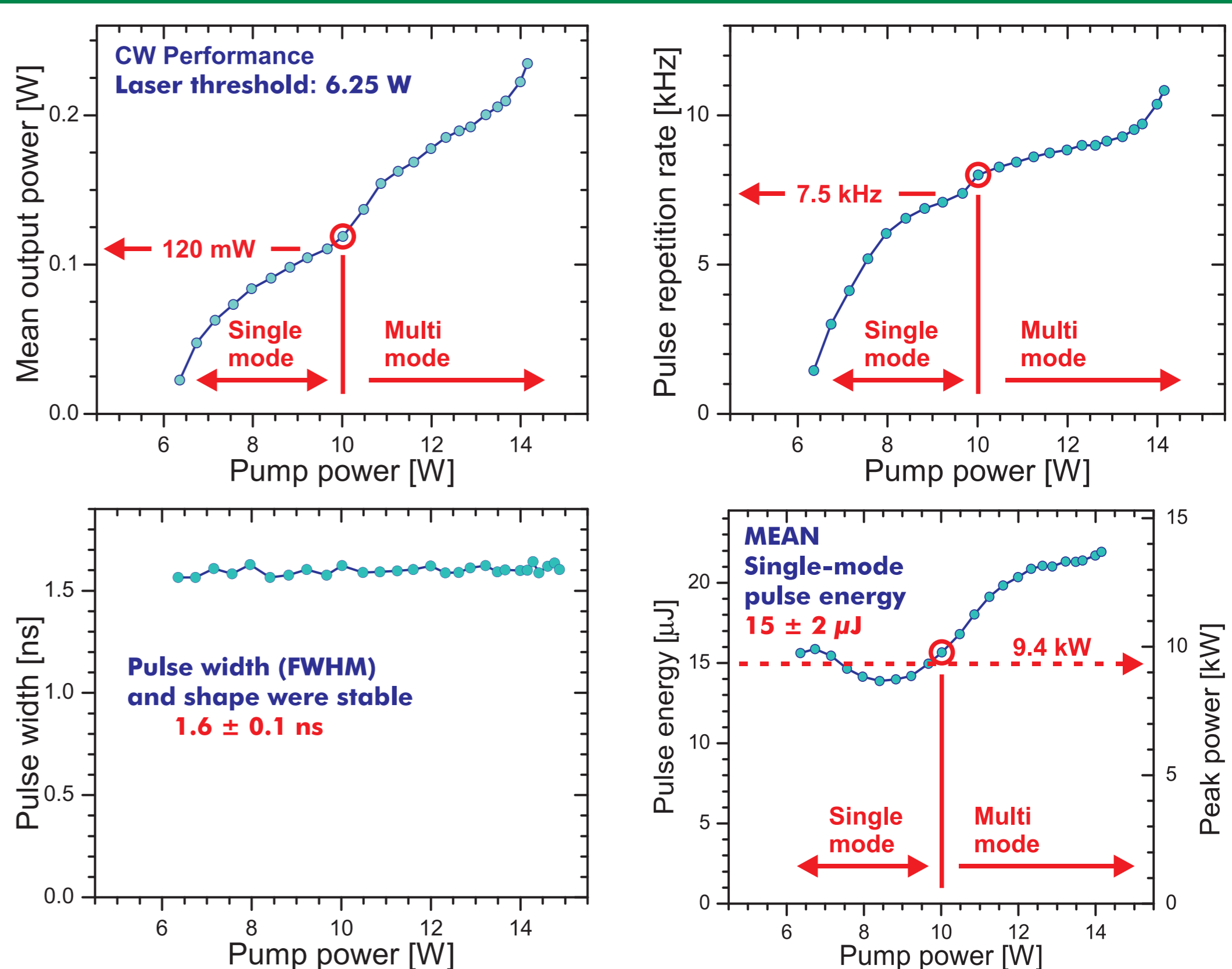
The Nd:YAG/V:YAG microchip crystal was designed using the diffusion bonding of 4 mm long Nd:YAG (1.1 at. % Nd/Y) and 0.7 mm of V:YAG passive saturable absorber. The initial transmission of saturable absorber was 85 %. The diameter of whole crystal was 5 mm. The dielectric mirrors were deposited directly on the monolith crystal faces. The output coupler with reflection 90 % for the generated wavelength was placed on the V³⁺-doped part. The total microchip laser resonator length was 4.7 mm.



Results: Pulsed Pumping



Results: CW Pumping



Conclusion

The Q-switched microchip Nd:YAG/V:YAG laser emitting radiation at wavelength 1.34 μm was designed and realized. Generated wavelength (1338 nm) can be suitable, due to significantly higher absorption in water in comparison with 1064 nm base line radiation, for application where more eye safety is required (rangefinding, illumination).

Acknowledgement

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