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Mark S. Zediker
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Introduction

This year the highlights of the conference included invited talks on the methods for coherent combination of laser diodes and the future of laser diode technology. The paper on coherent beam combination reviewed the progress on the numerous beam combination methods that have been tested, which include: spectral beam combining, dense wavelength beam combining, and coherent combination using both passive and active coherent combination techniques. However, after over 20 years of research, there are no coherent combined products in the marketplace today, despite demonstrating diffraction limited beam quality at power levels as high as 35 Watts. Nevertheless, laser diode systems using incoherent beam combination techniques have flourished in the industrial marketplace, with power output climbing yearly to a record level of 40 kW this year. The paper discussing this breakthrough in direct diode laser system design revealed a roadmap for scaling the power level to even higher levels, including up to 100 kW of fiber coupled output. The talk on the future of laser diode technology highlighted this power trend and discussed a number of technologies which are rapidly advancing, including the recent record laser diode bar levels of 300 Watt CW. The rapid advancement in laser diode technology includes: assembly methods, heatsink design, laser diode bar power levels, and laser diode bar reliability. The future looks bright, meaning we can expect higher brightness and higher power laser diode systems in the future.

Mark S. Zediker