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**Diode laser architectures using nonlinear optical interaction and feedback techniques**

In this work we discuss diode laser architectures using nonlinear optical interaction and feedback techniques. Different external-cavity feedback techniques to improve the spatial beam quality and narrow the linewidth of the output beam from both BALs and TDLs are presented. Broad area diode laser system with external cavity feedback around 800nm can produce several Watts of output power with a good beam quality. Tapered diode laser systems with external cavity feedback around 800nm and 1060nm can deliver more than 2W output power with diffraction-limited beam quality and can be operated in single-longitudinal mode. These high brightness, narrow linewidth, and tunable external-cavity diode lasers can emerge as the next generation of compact lasers that have the potential of replacing conventional high-power laser systems in many existing applications. In the talk we also present results of a tunable high power GaN green diode laser based on Littrow external-cavity feedback.

## Speaker Biography

Paul Michael Petersen is full professor in New Light Sources at the Technical University of Denmark. His research focuses on lasers, LEDs and biomedical optics. He has authored more than 150 international scientific publications and holds 15 patents. He is chairman of DOLL – a Photonics Green lab that tests and develops new lighting technology based on LED and diode laser technologies. From 2002 until 2012 he was appointed adjunct professor in Optics at the Niels Bohr Institute, Copenhagen University.

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