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5 March 2021

Vertically emitting ring interband cascade lasers

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Proceedings Volume 11705, Novel In-Plane Semiconductor Lasers XX: ([/conference-proceedings-of-spie/11705.toc](#)) 1170517 (2021) <https://doi.org/10.1117/12.2577764> (<https://doi.org/10.1117/12.2577764>)

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We have demonstrated that both ring quantum cascade (QCLs) and interband cascade lasers (ICLs) are excellent platforms for vertical light emission. Of these two lasers ICLs typically show lower power consumption and lasing threshold, qualifying them especially for miniaturized and battery-powered applications. With our work on ring ICLs we are aiming to build a compact portable sensing device, employing interferometric cavity-assisted photothermal spectroscopy. Here, we present our current work on interband cascade devices, as well as an overview of previous studies on ring QCLs. These devices rely on the light outcoupling via a second-order distributed-feedback grating from a ring cavity.

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