

**PROCEEDINGS VOLUME 11301**

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**Novel In-Plane Semiconductor Lasers XIX**

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15 Sessions, 28 Papers, 42 Presentations

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Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011F (24 February 2020); doi: 10.1117/12.2543004

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### **Energy barrier layers for high-power semiconductor lasers of 1550 nm spectral range (Conference Presentation)** ([/conference-proceedings-of-spie/11301/113011G/Energy-barrier-layers-for-high-power-semiconductor-lasers-of-1550/10.1117/12.2546163.full](#)) Presentation Only

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Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011G (17 March 2020); doi: 10.1117/12.2546163

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### **Surface Bragg gratings for high brightness lasers** ([/conference-proceedings-of-spie/11301/113011H/Surface-Bragg-gratings-for-high-brightness-lasers/10.1117/12.2543341.full](#))

[J. Fricke](#) ([/profile/Jörg.Fricke-4209080](#)); [H. Wenzel](#) ([/profile/notfound?author=H.\\_Wenzel](#)); [O. Brox](#) ([/profile/Olaf.Brox-34393](#)); [P. Crump](#) ([/profile/Paul.Crump-27320](#)); [B. Sumpf](#) ([/profile/Bernd.Sumpf-12750](#)); [K. Paschke](#) ([/profile/Katrin.Paschke-39990](#)); [M. Matalla](#) ([/profile/notfound?author=M.\\_Matalla](#)); [G. Erbert](#) ([/profile/Gotz.Erbert-14824](#)); [A. Knigge](#) ([/profile/notfound?author=A.\\_Knigge](#)); et. al.

Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011H (5 March 2020); doi: 10.1117/12.2543341

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### **Wavelength-stabilized near-field laser** ([/conference-proceedings-of-spie/11301/113011I/Wavelength-stabilized-near-field-laser/10.1117/12.2545235.full](#)) Presentation + Paper

[V. A. Shchukin](#) ([/profile/notfound?author=V.\\_A.\\_Shchukin](#)); [V. P. Kalosha](#) ([/profile/Vladimir.Kalosha-4052125](#)); [N. Ledentsov Jr.](#) ([/profile/Nikolay.Ledentsov Jr.-269180](#)); [Ł. Chorchos](#) ([/profile/Lukasz.Chorchos-243809](#)); [N. N. Ledentsov](#) ([/profile/Nikolay.Ledentsov-5917](#)).

Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011I (24 February 2020); doi: 10.1117/12.2545235

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## **QCLS: NOVEL DESIGN AND INTEGRATION**

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### **High performance and control of THz quantum cascade lasers (Conference Presentation)** ([/conference-proceedings-of-spie/11301/113011J/High-performance-and-control-of-THz-quantum-cascade-lasers-Conference/10.1117/12.2543386.full](#)) Presentation Only

[Martin Kainz](#) ([/profile/Martin.Kainz-4077836](#)); [Sebastian Schönhuber](#) ([/profile/Sebastian.Schönhuber-4077851](#)); [Michael Jaidl](#) ([/profile/Michael.Jaidl-4218662](#)); [Gottfried Strasser](#) ([/profile/Gottfried.Strasser-11977](#)); [Maxwell Andrews](#) ([/profile/notfound?author=Maxwell\\_Andrews](#)); [Juraj Darmo](#) ([/profile/notfound?author=Juraj\\_Darmo](#)); [Karl Unterrainer](#) ([/profile/Karl.Unterrainer-8560](#)).

Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011J (9 March 2020); doi: 10.1117/12.2543386


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We report on high performance Terahertz Quantum Cascade Lasers with InGaAs and GaAs active regions. Modified doping profiles derived from symmetric structures allowed achieving record output powers of double metal InGaAs/InAlAs THz Quantum Cascade Lasers. The increase of the Al concentration of the barriers in GaAs/AlGaAs devices helped to increase the operating temperature to above 191 K while keeping the threshold



current low. This has enabled laser operation by thermoelectric cooling which is very important for application. We demonstrate laser wavelength switching by magnetic field and wavelength selection in Random THz Quantum Cascade Lasers by spatially controlled near-infrared excitation

## MID-IR LASERS

**The GaSb-based Y-branch DBR and photonic crystal lasers (Conference Presentation)** ([/conference-proceedings-of-spie/11301/113011M/The-GaSb-based-Y-branch-DBR-and-photonic-crystal-lasers/10.1117/12.2548623.full](https://conference-proceedings-of-spie/11301/113011M/The-GaSb-based-Y-branch-DBR-and-photonic-crystal-lasers/10.1117/12.2548623.full))  **Presentation Only**  
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Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011M (9 March 2020); doi: 10.1117/12.2548623

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**High-brightness GaSb-based quantum-well lasers with an unstable resonator (Conference Presentation)** ([/conference-proceedings-of-spie/11301/113011N/High-brightness-GaSb-based-quantum-well-lasers-with-an-unstable/10.1117/12.2550390.full](https://conference-proceedings-of-spie/11301/113011N/High-brightness-GaSb-based-quantum-well-lasers-with-an-unstable/10.1117/12.2550390.full))

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Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011N (9 March 2020); doi: 10.1117/12.2550390

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**Narrow-linewidth Interband-cascade lasers for high-resolution spectroscopy** ([/conference-proceedings-of-spie/11301/113011O/Narrow-linewidth-Interband-cascade-lasers-for-high-resolution-spectroscopy/10.1117/12.2545833.full](https://conference-proceedings-of-spie/11301/113011O/Narrow-linewidth-Interband-cascade-lasers-for-high-resolution-spectroscopy/10.1117/12.2545833.full))  **Presentation + Paper**  
[S. Borri](https://profile/Simone.Borri-287567) ([/profile/Simone.Borri-287567](https://profile/Simone.Borri-287567)); [M. Siciliani de Cumis](https://profile/notfound?author=M.Siciliani.de.Cumis) ([/profile/notfound?author=M.Siciliani.de.Cumis](https://profile/notfound?author=M.Siciliani.de.Cumis)); [G. Insero](https://profile/Giacomo.Insero-287815) ([/profile/Giacomo.Insero-287815](https://profile/Giacomo.Insero-287815)); [S. Viciani](https://profile/notfound?author=S.Viciani) ([/profile/notfound?author=S.Viciani](https://profile/notfound?author=S.Viciani)); [F. D'Amato](https://profile/Francesco.D'Amato-500758) ([/profile/Francesco.D'Amato-500758](https://profile/Francesco.D'Amato-500758)); [P. De Natale](https://profile/Paolo.de.Natale-25131) ([/profile/Paolo.de.Natale-25131](https://profile/Paolo.de.Natale-25131)).

Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011O (24 February 2020); doi: 10.1117/12.2545833

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**Surface-emitting quantum cascade lasers with 2nd-order metal/semiconductor gratings for high continuous-wave performance** ([/conference-proceedings-of-spie/11301/113011P/Surface-emitting-quantum-cascade-lasers-with-2nd-order-metal-semiconductor/10.1117/12.2543595.full](https://conference-proceedings-of-spie/11301/113011P/Surface-emitting-quantum-cascade-lasers-with-2nd-order-metal-semiconductor/10.1117/12.2543595.full))  **Presentation + Paper**

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Proc. SPIE 11301, Novel In-Plane Semiconductor Lasers XIX, 113011P (24 February 2020); doi: 10.1117/12.2543595

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## POSTER SESSION



**Comparison between interferometric and piezoelectric readout of tuning fork vibrations in quartz-enhanced photoacoustic spectroscopy** ([/conference-proceedings-of-spie/11301/113011S/Comparison-between-interferometric-and-piezoelectric-readout-of-tuning-fork-vibrations/10.1117/12.2545664.full](https://conference-proceedings-of-spie/11301/113011S/Comparison-between-interferometric-and-piezoelectric-readout-of-tuning-fork-vibrations/10.1117/12.2545664.full))