

F. Grillot

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Professional Preparation

- MSc, Physics, University of Dijon, France, 1999.
- PhD, Electrical Engineering, University of Bourgogne Franche Comté, Besançon, France, 2003.
- Thesis Habilitation, Physics, University of Paris Diderot, Paris, France, 2012.

Appointments

- January 2017-: Full Professor of Photonics & Optical Communications, Télécom Paris, France;
- August 2015-: Research Professor, University of New Mexico, Albuquerque, USA;
- April 2017-Dec. 2017: Visiting Professor, University of California Los Angeles, USA;
- 2016-2021: Senior Consultant & Advisor Technology Partnerships, Baehl Innovation, France
- 2012-2016: Associate Professor, Télécom Paris, France;
- 2008-2009: Visiting Research Professor, University of New Mexico, USA;
- 2004-2012: Assistant Professor, Institut National des Sciences Appliquées, France;
- 2003-2004: Research Scientist, Center for Nanoscience and Nanotechnologies, Université Paris-Saclay, France;
- 1999-2003: PhD Student, Alcatel-Lucent Research Labs, France;

Selected Professional Activities

- Sept. 2021-: Deputy Editor, Optics Express (Optical Society of America);
- 2019-: Chair URSI France - Commission D (Electronics & Photonics);
- 2014-2020: Associate Editor, Optics Express (Optical Society of America);
- 2016-2018-: Vice-Chair URSI French commission D (Electronics & Photonics);
- 2010-2018: Vice Chair of the IEEE Photonics Society French Chapter;
- Guest Editor, Special Issue "Research and Application of Semiconductor Lasers", MDPI Applied Science, 2021;
- Optics Express Invited Deputy Editor, 7th International Symposium on Physics and Applications of Laser Dynamics (IS-PALD), 2017;
- Optics Express Invited Focus Editor, 3rd International Symposium on Physics and Applications of Laser Dynamics (IS-PALD), 2013;

Program Committee

- 2021-: IEEE International Semiconductor Laser Conference;
- 2021-: CLEO Europe Conference (subcommittee Semiconductor Lasers);
- 2020-: Semiconductor Lasers and Laser Dynamics, Photonics Europe;
- 2018-: European Workshop on Semiconductor Lasers;
- 2015-: Physics and Simulation of Optoelectronic Devices XXIII, Photonic West;
- 2015-2018: Quantum Sensing and Nanophotonic Devices XII, Photonics West;
- IEEE RAPID Conference, Miramar Beach, 2018;
- Topic Chair of the IEEE Summer Topical Meetings, Lauderdale, 2019;
- General Chair of the European Workshop on Semiconductor Lasers, Paris, France, 2021;
- General Chair of the URSI France conference on *Nano, Meso, Micro: Science & Innovation for Radio & Photonics*, Paris, France, 2022;
- Co-chair of the conference on *Quantum Light Sources & Applications* at the IEEE Summer Topical Meetings, Cabo San Luca, Mexico, 2022;

Honors, Awards, and Society Offices

- Bozhang Dong, Nature Springer Outstanding PhD Thesis, (2023)
- IEEE Photonics Society Distinguished Lecturer Award (2022-2023);
- Front cover of Laser & Photonics Reviews, March 2022;
- Front cover of Laser & Photonics Reviews, February 2022;
- Selected for OPN's Year in Optics, (2022);
- Selected by Advanced Photonics for the top papers collection 2020 - 2021;
- IEEE Photonics Technology Letters Best Paper Award, (2021);
- Front cover of ACS Photonics, September 2021;
- Olivier Spitz, Nature Springer Outstanding PhD Thesis, (2020)
- Innovation Award – The University of New-Mexico, (2020);
- Selected by Journal of Physics Photonics for the "Highlights of 2020" collection;
- Fellow Member of the SPIE – The International Society for Optical Engineering, (2019);
- Senior Member of the Optical Society America, (2019);
- Senior Member of the IEEE and IEEE Photonics Society, (2011);
- Ranked among the top articles in photonics and optoelectronics in Applied Physics Letters (2019);
- Selected by Scientific Reports (Nature Springer) in the Editor's choice highlighting the most promising research in semiconductor lasers (2019);
- Louise Jumpertz, Nature Springer Outstanding PhD Thesis, (2017)
- Windows on Science, US Air Force Research Laboratory, USA (2011, 2013, 2017, 2019);
- Granted fellowship from the Deutscher Akademischer Austauschdienst (DAAD), Germany, (2013).

Most Relevant Publications

1. L. Salomon, F. Grillot, A. V. Zayats, and F. de Fornel, *Near-field distribution of optical transmission of periodic sub-wavelength holes in a metal film*, Phys. Rev. Letts. **86**, 1110 (2001).
2. F. Grillot, L. Vivien, S. Laval, D. Pascal and E. Cassan, *Size influence on the propagation loss induced by side-wall roughness in ultra-small SOI waveguides*, IEEE Photon. Technol. Letts. **16**, 1661 (2004).
3. L. Jumpertz, K. Schires, M. Carras, M. Sciamanna and F. Grillot, *Chaotic light at mid Infrared wavelength*, Light: Sciences & Applications **5**, e16088 (2016).
4. O. Spitz, J. Wu, A. Herdt, G. Maisons, M. Carras, W. E. Elsasser, C.-W. Wong, and F. Grillot, *Extreme events in quantum cascade lasers*, Advanced Photonics **2**, 066001 (2020).
5. F. Grillot, J.C. Norman, J. Duan, Z. Zhang, B. Dong, H. Huang, W. W. Chow, and J.E. Bowers, *Physics and Applications of quantum dot lasers for silicon photonics (invited)*, Nanophotonics, 20190570 (2020).
6. F. Grillot, J. Duan, B. Dong, and H. Huang, *Uncovering recent progress in nanostructured light-emitters for information and communication technologies (review)* **10**, 156, Light: Sciences & Applications (2021).
7. O. Spitz, A. Herdt, J. Wu, G. Maisons, M. Carras, C.-W. Wong, W. Elsaesser, and F. Grillot *Private communication with quantum cascade laser photonic chaos*, Nature Communications **12**, 3327 (2021).
8. C. Shang, Y. Wan, J. Selvidge, E. Hughes, R. Herrick, K. Mukherjee, J. Duan, F. Grillot, W. W. Chow, and J. E. Bowers, *Perspectives on advances in quantum dot lasers and integration with Si photonic integrated circuits (Invited + Cover)*, ACS Photonics **8**, 2555 (2021).

On-going research grants¹

- 2021-2024: *Phased array quantum cascade lasers for satellite communications and infrared countermeasures*, EOARD & Army & ONR (~USD 370K);
- 2020-2023: *Mid infrared cryptosystems using quantum cascade lasers*, French Department of Defense (~USD 130K);
- 2020-2021: *Quantum cascade lasers for free-space communications*, Institut Mines Télécom (~USD

¹In the European system, the amount indicated in USD corresponds to net money that is to say the money for doing research only. It does not include the summer faculty salary and the overheads.

70K)

2020-2021: *Frequency comb quantum dot lasers*, Bilateral project with HPE (~USD 70K)

2019-2020: *Light-emitting device having III-V semiconductor gain section coupled to whistle-geometry tunable filter*, Institut Mines Télécom (~USD 60K)

2018-2021: *Free-space communications with quantum cascade lasers*, French National Research Agency ANR (~USD 500K);

2017-2021: *Photonic Integrated Circuits Accessible to Everyone*, European Union H2020 (~USD 100K);

2018-2021: *Controlling intersubband nonlinear dynamics for secure communications, high-power lasers and optical countermeasures*, European Office of Aerospace Research & Development, EOARD (~USD 70K).

2018-2021: *Optoelectronic characterization and modeling of external cavity semiconductor diode lasers for metrological applications*, Bilateral project with EXFO (~USD 60K).

2018-2020: *Narrow linewidth semiconductor lasers for coherent communication systems*, International Franco-German Program PhC Procop (~USD 10K).

Recently completed research grants¹

2015-2018: *Nanostructured Lasers for microwave, millimeter-wave and terahertz generation*, European Office of Aerospace Research & Development, EOARD (~USD 70K).

2015-2018: *Hybrid III-V/Si lasers for optical communications*, Bilateral project with Nokia (~USD 60K).

2015-2016: *Rogue Waves in Optical RF Transmission Links*, Office of Naval Research Global ONRG (~USD 180K);

2014-2016: *Phase-Amplitude Coupling in Complex Semiconductor Lasers with External Control*, International Franco-Taiwanese Program PhC Orchid (~USD 20K).

2013-2016: *Nonlinear photonics with quantum cascade lasers*, French Department of Defense (~USD 130K);

2013-2015: *Nonlinear Photonics in Nanostructured Semiconductor Lasers*, International Franco-German Program PhC Procop (~USD 10K);

2014-2015: *Design, characterization and performance optimization of nanostructured semiconductor lasers for high bit rate telecommunications and optical sampling/clocking*, Program Research in Paris (~USD 30K);

2013-2015: *Silicon Optoelectronics*, French National Research Agency ANR (~USD 100K);

2012-2014: *Manipulation of the Phase-Amplitude Factor in Quantum Nanostructure based device for On-Chip Chirp Compensation and Low-Cost Applications*, European Office of Aerospace Research & Development EOARD (~USD 70K).

Past research grants

2009-2012: *Telecom Applications based on Quantum Dot devices*, French National Research Agency ANR;

2008-2010: *Carbone Nanotubes for Telecom Applications*, French National Research Agency ANR;

2004-2007: *Photonic Integrated Components and Circuits*, European Network of Excellence (FP6-IST);

2004-2007: *Self-Assembled Semiconductor Nanostructures for New Devices in Photonics and Electronics*, European Network of Excellence (FP6-IST);

Expertise activities

- FWO Flanders Research Program;
- European Science Foundation;
- French Research National Agency (ANR);
- Romanian National Council for Development and Innovation, Romania;
- Graduate Women in Science Organization, USA;
- Strategic Research Funding, The City University of Hong Kong, China;
- National Research Foundation of Singapore, Singapore;

- External reviewer for Nanyang Technological University, Singapore;

Peer-Reviewed Journal Papers

- [128] J. Duan, B. Dong, W. W. Chow, H. Huang, S. Ding, S. Liu, J. C Norman, J. E. Bowers, and F. Grillot, *Four-wave mixing in 1.3-micron epitaxial quantum dot lasers directly grown on silicon*, Photonics Research, vol. 10, 1264, 2022.
- [127] S. Zhao and F. Grillot, *Modeling of Amplitude Squeezing in a Pump-Noise-Suppressed Interband Cascade Laser*, IEEE Photonics Journal, vol. 14, 1924208, 2022.
- [126] F. Grillot, W. W. Chow, B. Dong, S. Ding, H. Huang, and J. E. Bowers, *Multimode Physics in the Mode Locking of Semiconductor Quantum Dot Lasers* (Invited paper), MDPI Applied Physics, vol. 12, 3504, 2022.
- [125] W. W. Chow, Y. Wang, J. E. Bowers, and F. Grillot, *Analysis of the Spontaneous Emission Limited Linewidth of an Integrated III-V/SiN Laser*, Laser & Photonics Reviews, 2100620, 2022.
- [124] S. Ding, B. Dong, H. Huang, J. E. Bowers, and F. Grillot, *Reflection sensitivity of InAs/GaAs epitaxial quantum dot lasers under direct modulation*, Electronics Letters, vol. 58, 363, 2022.
- [123] S. Ding, B. Dong, H. Huang, J. E. Bowers, and F. Grillot, *Spectral dispersion of the linewidth enhancement factor and four wave mixing conversion efficiency of an InAs/GaAs multimode quantum dot laser* (Editor's Pick), Appl. Phys. Lett. 120, 081105, 2022.
- [122] O. Spitz and F. Grillot, *A review of recent results of mid-infrared quantum cascade photonic devices operating under external optical control* (Topical Review), Journal of Physics: Photonics, vol. 4, 022001, 2022
- [121] O. Spitz, L. Durupt, and F. Grillot, *Competition between entrainment phenomenon and chaos in a quantum cascade laser under strong optical reinjection*, 9:29 MDPI Photonics (2022).
- [120] Y. Deng, Z.-F. Fan, B.-B. Zhao, X.-G. Wang, S. Zhao, J. Wu, F. Grillot and C. Wang, *Mid-infrared free-space cryptosystem*, Light: Sciences & Applications, 11:7 (2022).
- [119] O. Spitz, P. Didier, L. Durupt, D. Andres Diaz-Thomas, A. N Baranov, L. Cerutti, and F. Grillot *Free-Space Communication with Directly Modulated Mid-Infrared Quantum Cascade Devices*, IEEE Accepted in Journal of Selected Topics in Quantum Electronics, **28**, 1200109 (2022).
- [118] O. Spitz, A. Herdt, P. Didier, W. Elsässer, and F. Grillot, *Mid-infrared free-space cryptosystem, Accepted in Nonlinear Theory and Its Applications*, IEICE Nonlinear Theory and Its Applications (NOLTA), 13:1, 44 (2022).
- [117] H. Dely, T. Bonazzi, O. Spitz, E. Rodriguez, D. Gacemi, Y. Todorov, K. Pantzas, G. Beaudoin, I. Sagnes, L. Li, A. G. Davies, E. H. Linfield, F. Grillot, A. Vasanelli, and C. Sirtori, *10 Gbit/s Free Space data transmission at 9 μm wavelength with unipolar quantum optoelectronics*, Laser & Photonics Reviews, 2100414 (2021).
- [116] P. Didier, O. Spitz, L. Cerutti, D.A. Diaz-Thomas, A.N. Baranov, M. Carras, and F. Grillot, *Relative intensity noise and intrinsic properties of RF mounted interband cascade laser*, Applied Physics Letters **119**, 171107 (2021).
- [115] C. Shang, Y. Wan, J. Selvidge, E. Hughes, R. Herrick, K. Mukherjee, J. Duan, F. Grillot, W. W. Chow, and J. E. Bowers, *Perspectives on advances in quantum dot lasers and integration with Si photonic integrated circuits (Invited + Cover)*, ACS Photonics, **8**, 2555 (2021).
- [114] B. Dong, J. Duan, H. Huang, J. C. Norman, K. Nishi, K. Takemasa, M. Sugawara, J. E. Bowers, and F. Grillot, *Dynamic performance and reflection sensitivity of quantum dot distributed feedback lasers with large optical mismatch*, Photonics Research, **9**, 1550 (2021).
- [113] F. Grillot, J. Duan, B. Dong, and H. Huang, *Uncovering recent progress in nanostructured light-emitters for information and communication technologies (review paper)*, Light: Sciences & Applications, **10**, 156 (2021).
- [112] J. F Ehlert, A. Mugnier, G. He, and F. Grillot, *Modeling of a quantum dot gain chip in an external cavity laser configuration*, Laser Physics, **31**, 085002 (2021).
- [111] O. Spitz, A. Herdt, W. Elsaesser, and F. Grillot, *Stimulating polarization switching dynamics in mid-infrared quantum cascade lasers*, Journal of the Optical Society of America B, **38**, 35 (2021).
- [110] S. Zhao and F. Grillot, *Effect of Shockley-Read-Hall recombination on the static and dynamical characteristics of epitaxial quantum-dot lasers on silicon*, Physical Review A, **103**, 063521 (2021).
- [109] O. Spitz, A. Herdt, J. Wu, G. Maisons, M. Carras, C.-W. Wong, W. Elsaesser, and F. Grillot *Private communication with quantum cascade laser photonic chaos*, Nature Communications, **12**,

3327 (2021).

- [108] B. Dong, J.-D. Chen, F.-Y. Lin, J. C. Norman, J. E. Bowers, and F. Grillot, *Dynamic and nonlinear properties of epitaxial quantum-dot lasers on silicon operating under long- and short-cavity feedback conditions for photonic integrated circuits*, Phys. Rev. A, **103**, 033509 (2021)
- [107] O. Spitz, J. Wu, A. Herdt, G. Maisons, M. Carras, W. E. Elsasser, C.-W. Wong, and F. Grillot, *Extreme events in quantum cascade lasers*, Advanced Photonics, **2**, 066001 (2020).
- [106] J. Duan, Y. Zhou, B. Dong, H. Huang, J. C. Norman, D. Jung, Z. Zhang, C. Wang, J. E. Bowers, and F. Grillot, *Effect of p-doping on the intensity noise of epitaxial quantum dot lasers on silicon*, Optics Letters, **45**, 4887 (2020).
- [105] Y. Zhou, J. Duan, F. Grillot, and C. Wang, *Optical noise of dual-state lasing quantum dot lasers*, IEEE Journal of Quantum Electronics, **56**, 2001207 (2020).
- [104] B. Dong, X. C. de Labriolle, S. Liu, M. Dumont, H. Huang, J. Duan, J. C Norman, J. E. Bowers, and F. Grillot, *1.3 microns passively mode-locked quantum dot lasers epitaxially grown on silicon: gain properties and optical feedback stabilization*, Journal of Physics: Photonics, **2**, 045006 (2020).
- [103] F. Köster, J. Duan, B. Dong, H. Huang, Z. Lu, P. Poole, F. Grillot, and K. Lüdge, *Temperature dependent linewidth rebroadening in quantum dot semiconductor lasers*, Journal Physics: Photonics, **53**, 235106 (2020).
- [102] X.-G. Wang, B.-B. Zhao, F. Grillot, and C. Wang, *Spectral linewidth reduction of quantum cascade lasers by strong optical feedback*, Journal of Applied Physics, **127**, 073104 (2020).
- [101] F. Grillot, J.C. Norman, J. Duan, Z. Zhang, B. Dong, H. Huang, W. W. Chow, and J.E. Bowers, *Physics and Applications of quantum dot lasers for silicon photonics (invited)*, Nanophotonics, 20190570 (2020).
- [100] S. Gomez, H. Huang, J. Duan, S. Combrié, G. Baili, A. de Rossi, F. Grillot, *High coherence collapse of a hybrid III-V/Si semiconductor laser with a large quality factor*, Journal Physics: Photonics, **2**, 025005 (2020).
- [99] H. Huang, J. Duan, B. Dong, J. Norman, D. Jung, J.E. Bowers, and F. Grillot, *Epitaxial quantum dot lasers on silicon: systematic investigation of the optical feedback sensitivity on temperature and doping profiles*, APL Photonics, **5**, 016103 (2020).
- [98] B. Dong, H. Huang, J. Duan, G. Kurczveil, D. Liang, R. Beausoleil, and F. Grillot, *Frequency comb dynamics of a 1.3- μm hybrid-silicon quantum dot semiconductor laser with optical injection*, Optics Letters, **44**, 5755 (2019).
- [97] J. Duan, H. Huang, B. Dong, J. C. Norman, Z. Zhang, J. E. Bowers, and F. Grillot, *Dynamic and nonlinear properties of epitaxial quantum dot lasers on silicon for isolator-free integration*, Photonics Research, **7**, 1222 (2019).
- [96] O. Spitz, J. Wu, A. Herdt, M. Carras, W. Elsaesser, C.-W. Wong, and F. Grillot, *Investigation of chaotic and spiking dynamics in mid-infrared quantum cascade lasers operating continuous-waves and under current modulation*, IEEE Journal of Selected Topics in Quantum Electronics, **25**, 1200311 (2019).
- [95] B. Dong, J. Duan, C. Shang, H. Huang, A. B. Sawadogo, D. Jung, Y. Wan, J. E. Bowers, and F. Grillot, *Influence of the polarization anisotropy on the linewidth enhancement factor and reflection sensitivity of 1.55 micron InP-based InAs quantum dash lasers*, Applied Physics Letters, **115**, 091101 (2019).
- [94] Y.-G. Zhou, J. Duan, H. Huang, X.-Y. Zhao, C.-F. Cao, Q. Gong, F. Grillot, and C. Wang, *Intensity noise and pulse oscillations of an InAs/GaAs quantum dot laser on germanium*, IEEE Journal of Selected Topics in Quantum Electronics, **25**, 1900110 (2019).
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- [92] J. Duan, H. Huang, B. Dong, D. Jung, J. C. Norman, J. E. Bowers, F. Grillot *1.3 micron Reflection Insensitive InAs/GaAs Quantum Dot Lasers Directly Grown on Silicon*, IEEE Photon. Technol. Letts, **31**, 345 (2019)
- [91] J. Duan, X.-G. Wang, Y.-G. Zhou, C. Wang, and F. Grillot, *Carrier-Noise Enhanced Relative Intensity Noise of Quantum Dot Lasers*, IEEE J. of Quantum Electron., **54**, 2001407, (2018).
- [90] H. Huang, J. Duan, D. Jung, A. Y. Liu, Z. Zhang, J. Norman, J. E. Bowers, and F. Grillot, *Analysis of the optical feedback dynamics in InAs/GaAs quantum dot lasers directly grown on silicon*,

Journal of the Optical Society of America B, **35**, 2780, (2018).

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- [86] X.-G. Wang, B.-B. Zhao, F. Grillot, and C. Wang, *Frequency noise suppression of optical injection-locked quantum cascade lasers*, Optics Express, **26**, 15167, (2018).
- [85] J. Duan, H. Huang, Z. G. Lu, P. J. Poole, C. Wang, and F. Grillot, *Narrow spectral linewidth in InAs/InP quantum dot distributed feedback lasers*, Appl. Phys. Lett., **112**, 121102, (2018).
- [84] X.-G. Wang, F. Grillot, and C. Wang, *Rate equation modeling of the frequency noise and the intrinsic spectral linewidth in quantum cascade lasers*, Optics Express, **26**, 2326, (2018).
- [83] H. Huang, L.-C. Lin, C.-Y. Chen, D. Arsenijevic, D. Bimberg, F.-Y. Lin, and F. Grillot, and F. Y. Lin, *Multimode optical feedback dynamics in InAs/GaAs quantum dot lasers emitting exclusively on ground or excited states: transition from short- to long-delay regimes*, Optics Express, **26**, 1743, (2018).
- [82] L.-C. Lin, C.-Y. Chen, H. Huang, D. Arsenijevic, D. Bimberg, F. Grillot, and F. Y. Lin, *Comparison of optical feedback dynamics of InAs/GaAs quantum-dot lasers emitting solely on ground or excited states*, Optics Letters, **43**, 210, (2018).
- [81] K. Schires, S. Gomez, A. Gallet, G. H. Duan, and F. Grillot, *Passive chaos bandwidth enhancement under dual optical feedback with hybrid III-V/Si DFB lasers*, IEEE Journal of Selected Topics in Quantum Electronics, **23**, 1801309, (2017).
- [80] C. Redlich, B. Lingnau, H. Huang, R. Raghunathan, K. Schires, P. Poole, F. Grillot, and K. Luedge, *Linewidth rebroadening in quantum dot semiconductor lasers*, IEEE Journal of Selected Topics in Quantum Electronics, **23**, 1901110, (2017).
- [79] J. M. Sarraute, K. Schires, F. Grillot, S. LaRochelle, *Effects of gain nonlinearities in an optically injected gain lever semiconductor laser*, Photonics Research, **5**, 315, (2017).
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- [77] J. Even, C. Wang, and F. Grillot, *From basic physical properties of InAs/InP quantum dots to state-of-the-art lasers for 1.55- μ m optical communications: An overview*, Semiconductor Nanocrystals and Metal Nanoparticles, pp. 95–125, CRC Press, (2016).
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- [75] H. Huang, D. Arsenijević, K. Schires, T. Sadeev, D. Bimberg, and F. Grillot, *Multimode optical feedback dynamics of InAs/GaAs quantum-dot lasers emitting on different lasing states*, AIP Advances, **6**, 125114, (2016).
- [74] H. Huang, D. Arsenijevic, K. Schires, T. Sadeev, D. Erasme, D. Bimberg, and F. Grillot, *Efficiency of four-wave mixing in injection-locked InAs/GaAs quantum-dot lasers*, AIP Advances, **6**, 125105, (2016).
- [73] L. Jumpertz, C. Caillaud, C. Gilles, S. Ferré, K. Schires, L. Brilland, J. Troles, M. Carras, and F. Grillot, *Estimating optical feedback from a chalcogenide fiber in mid-infrared quantum cascade lasers*, AIP Advances, **6**, 105201, (2016).
- [72] L. Jumpertz, K. Schires, M. Carras, M. Sciamanna and F. Grillot, *Chaotic light at mid Infrared wavelength*, Nature Light Sciences and Applications, **5**, e16088, (2016).
- [71] C. Wang, K. Schires, M. Osiński, P. J. Poole, and F. Grillot *Thermally insensitive determination of the linewidth broadening factor in nanostructured semiconductor lasers using optical injection locking*, Nature Scientific Reports, **6**, 27825, (2016).
- [70] K. Schires, N. Girard, G. Baili, G. H. Duan, S. Gomez, and F. Grillot, *Dynamics of Hybrid III-V Silicon Semiconductor Lasers for Integrated Photonics*, IEEE Journal of Selected Topics in Quantum Electronics, **22**, 1800107 (2016).
- [69] C. Wang, R. Raghunathan, K. Schires, S.-C. Chan, L. F. Lester, and F. Grillot, *Optically injected*

- InAs/GaAs quantum dot laser for tunable photonic microwave generation*, Optics Letters, **41**, 1153, (2016).
- [68] L. Jumpertz, F. Michel, R. Pawlus, W. Elsaesser, K. Schires, M. Carras, and F. Grillot, *Measurements of the linewidth enhancement factor of mid-infrared quantum cascade lasers by different optical feedback techniques*, AIP Advances, **6**, 015212, (2016).
- [67] T. Sadeev, H. Huang, D. Arsenijevic, K. Schires, F. Grillot, and D. Bimberg, *Highly efficient non-degenerate four-wave mixing under dual-mode injection in InP/InAs quantum-dash and quantum-dot lasers at 1.55 μm* , Applied Physics Letters, **107**, 191111, (2015).
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- [65] J. M. Sarraute, K. Schires, S. LaRochelle, F. Grillot, *Enhancement of the modulation dynamics of an optically injection-locked semiconductor laser using gain lever*, IEEE Journal of Selected Topics in Quantum Electronics, **21**, 1801408, (2015).
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- [61] C. Wang, M. Osinski, J. Even, and F. Grillot, *Phase-amplitude coupling characteristics in directly modulated quantum dot lasers*, Applied Physics Letters, **105**, 221114, (2014).
- [60] L. Jumpertz, K. Schires, M. Carras and F. Grillot, *Regimes of external optical feedback in 5.6 μm distributed feedback mid-infrared quantum cascade lasers*, Applied Physics Letters, **105**, 131112, (2014).
- [59] C. Wang, B. Lingnau, K. Lüdge, J. Even, and F. Grillot, *Enhanced dynamic performance of quantum dot semiconductor lasers operating on the excited state*, IEEE Journal of Quantum Electronics, **50**, 723, (2014).
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Invited & Post-Deadlines Talks

- [48] *Free-space optical communications using mid infrared quantum cascade technology*, The IEEE International Photonics (IPC), Vancouver, 2022.
- [47] *Bridging the 100 GHz – 10 THz domain with unipolar quantum optoelectronics*, SPIE Optics, San Diego, 2022.
- [46] *Semiconductor quantum dots: genesis, prospects & challenges*, 3-day International Conference on Materials Science (3d-ICOMAS), Verona, 2022.
- [45] *Unipolar quantum technology enabling high-speed free-space communication in the long-wave infrared regime*, Conference on Lasers and Electro-Optics (CLEO), Postdeadline, 2022.
- [44] *The future of quantum dot lasers for next generation silicon photonics*, 20 Jahre CINSaT Workshop, Kassel, Germany, 2022.
- [43] *Chaos-based mid-infrared communications*, Photonics West, San Francisco, USA, 2022.
- [42] *Mode locking and frequency comb generation by four-wave mixing in a semiconductor quantum-dot active medium*, The Solvay Meeting, Brussels, Belgium, 2021.
- [41] *Recent progress in quantum dot distributed feedback lasers with large wavelength detuning for uncooled and isolation-free applications*, The 26th Optoelectronics and Communications Conference, Virtual Event, 2021.

- [40] *High performance semiconductor lasers made with a harmonic photonic potential*, WIAS Workshop: Nonlinear Dynamics in Semiconductor Lasers, Virtual Event, 2021.
- [39] *Intensity noise and modulation dynamics of epitaxial quantum dot semiconductor lasers on silicon*, Photonics West, Virtual Event, USA, 2021.
- [38] *Frequency-domain modeling of semiconductor mode lock lasers*, The IEEE International Photonics Conference (IPC), Virtual Event, 2020
- [37] *Quantum dot lasers based photonic integrated circuits*, The IEEE International Photonics Conference (IPC), Virtual Event, 2020.
- [36] *Nonlinear-optical properties of semiconductor quantum dots*, The 28th International Symposium on Nanostructures: Physics and Technology, Virtual Event, 2020.
- [35] *Uncovering reflection insensitive lasers: from promise to reality*, The Optical Fiber Communication Conference (OFC), San Diego, USA, 2020.
- [34] *High-performance mode-locked lasers on silicon*, Photonics West, San Francisco, USA, 2020.
- [33] *Epitaxial integration of high-performance quantum-dot lasers on silicon*, Photonics West, San Francisco, USA, 2020.
- [32] *Towards private communications with mid-infrared chaotic light*, Photonics West, San Francisco, USA, 2020.
- [31] *1.3- μm high performance epitaxial quantum dot lasers on silicon*, The 7th International Workshop on Epitaxial Growth and Fundamental Properties of Semiconductor Nanostructures, Kobe, Japan, 2019.
- [30] *High coherence semiconductor lasers for next generation silicon photonics*, The 11th International Conference on Information Optics and Photonics (CIOP), Xi'An, China, 2019.
- [29] *Improved quantum dot uniformity and its impact on reflection sensitivity*, European Conference on Integrated Optics (ECIO), Ghent, Belgium, 2019
- [28] *Quantum dot lasers for next generation optical networks*, The 49th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, USA, 2019.
- [27] *Linewidth broadening factor and optical feedback sensitivity of silicon based quantum dot lasers*, SPIE Photonics West, San Francisco, 2019.
- [26] *Dynamical properties of quantum dot lasers directly grown on silicon*, The International Symposium on Physics and Applications of Laser Dynamics (IS-PALD), Hong-Kong, China, 2018.
- [25] *Utilizing the Complex Dynamics of QD lasers for Ultrafast Devices*, IEEE International Photonics Conference, Reston, USA, 2018
- [24] *Stability, instability and chaos of InAs/GaAs semiconductor quantum dot lasers emitting exclusively on single lasing state*, The 26th International Symposium on Nanostructures: Physics and Technology, Minsk, Belarus, 2018.
- [23] *Controllable optical extreme events in the semiconductor laser output power*, Photonics North, Montreal, Canada, 2018
- [22] *InAs/GaAs quantum dot lasers with short external feedback*, SPIE Photonics Europe, Strasbourg, France, 2018.
- [21] *Ultrafast and nonlinear dynamics of InAs/GaAs quantum-dot lasers*, SPIE Photonics West, San Francisco, USA, 2018.
- [20] *Temperature dependence of a mid-infrared quantum cascade laser with external optical feedback*, SPIE Photonics West, San Francisco, USA, 2018.
- [19] *Talbot coupling of an array of quantum cascade lasers*, SPIE Photonics West, San Francisco, USA, 2018.
- [18] *Complex delay dynamics of high power quantum cascade oscillators*, SPIE Nanoscience + Engineering, San Diego, USA, 2017.
- [17] *Integrated nonlinear photonics*, ShanghaiTech Workshop on Emerging Devices, Circuits and Systems (SWEDCS), Shanghai, China, 2017.
- [16] *Beam steering in quantum cascade lasers with optical feedback*, SPIE Photonics West, San Francisco, USA, 2017.
- [15] *Quantum cascade lasers with external feedback*, International Workshop: Nonlinear Dynamics in Semiconductor Lasers, Berlin, Germany, 2016.
- [14] *Première observation de l'effet papillon dans un laser à cascade quantique émettant dans le moyen infra-rouge*, Journées Nationales d'Optique Guidée (JNOG), Bordeaux, France, 2016.

- [13] *Chaotic dynamic of quantum cascade lasers*, International Symposium on Physics and Applications of Laser Dynamics (ISPALD), Hsinchu, Taiwan, 2016.
- [12] *Deterministic temporal chaos from a mid-infrared quantum cascade laser subjected to external optical feedback*, SPIE Photonics West, San Francisco, USA, 2016.
- [11] *Optical Nonlinearities in Injection-Locked Nanostructure Light-based Emitters*, SPIE Photonics Europe, Brussels, Belgium, 2016.
- [10] *Recent advances in InAs/GaAs quantum dot lasers with external control*, Symposium on Semiconductor Nanophotonics, Berlin, 2015.
- [9] *Recent advances in optically-injected Q-cascade lasers*, 2nd International Conference and Exhibition on Lasers, Optics & Photonics, Philadelphia, USA, 2014.
- [8] *Optically-injected nanostructure lasers*, International Symposium on Physics and Applications of Laser Dynamics, Paris, 2013.
- [7] *Strongly injection-locked cascaded microring lasers for optical communications at 100 GHz and beyond*, International Symposium on Physics and Applications of Laser Dynamics, Paris, 2013.
- [6] *Differential gain enhancement in a quantum dash laser using strong optical injection*, Photonics West, San Francisco, USA, 2013.
- [5] *Modeling the Injection-Locking Behavior of Quantum Cascade Lasers*, International Symposium on Physics and Applications of Laser Dynamics, Tainan City, Taiwan, 2012.
- [4] *Non-linear dynamics in quantum dot photonic circuits: From optically injected to passively mode locked lasers*, International Workshop on Nonlinear Dynamics in Semiconductor Lasers, Berlin, Germany, 2012.
- [3] *Frequency chirp stabilization in semiconductor distributed feedback lasers with external control*, SPIE Photonics West, San Francisco, USA, 2012.
- [2] *External control in semiconductor quantum nanostructure lasers for future integrated photonic devices*, International Photonics Conference, Tainan, Taiwan, 2011.
- [1] *QD laser on InP substrate for 1550 nm emission and beyond*, SPIE Photonics West, San Francisco, USA, 2010.

Other Selected Conference Papers

- [145] P. Didier, H. Dely, O. Spitz, E. Awwad, T. Bonazzi, E. Rodriguez, C. Sirtori, F. Grillot, *Unipolar quantum technology enabling high-speed free-space communication in the long-wave infrared regime*, Conference on Lasers and Electro-Optics (CLEO), San Jose, USA, 2022.
- [144] T. Bonazzi, H. Dely, O. Spitz, E. Rodriguez, D. Gacemi, Y. Todorov, K. Pantzas, G. Beaudoin, I. Sagnes, F. Grillot, A. Vasanelli, C. Sirtori, *High speed mid-infrared Stark modulator for optical data transmission up to 10 Gbps*, Conference on Lasers and Electro-Optics (CLEO), San Jose, USA, 2022.
- [143] Q. Chu, S. Zhao, F. Grillot, J. Wang, F. He, M. Zhang, X. Xu, Y. Yao, J. Duan, *Relative intensity noise of injection-locked epitaxial quantum dot laser on silicon*, International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD), Virtual Event, 2022.
- [142] O. Spitz, S. Zhao, P. Didier, D. A. Díaz-Thomas, L. Cerutti, A. N. Baranov, H. Knötig, R. Weih, J. Köth, B. Schwarz, F. Grillot, *Interband cascade technology for next-generation mid-IR communication and quantum applications*, IEEE Photonics Society Summer Topicals Meeting, Cabo San Lucas, Mexico, 2022.
- [141] B. Dong, S. Zhao, J. Duan, H. Huang, J. C. Norman, J. E. Bowers, F. Grillot, *Quantum Dots for photonic integrated circuits: from isolation-free to amplitude noise squeezing*, IEEE Photonics Society Summer Topicals Meeting, Cabo San Lucas, Mexico, 2022.
- [140] T. Renaud, H. Huang, D. Liang, G. Kurczveil, R.G. Beausoleil, and F. Grillot, *Impact of the saturable absorber on the linewidth enhancement factor of hybrid silicon quantum dot comb lasers*, European Conference on Integrated Optics, Milan, Italy, 2022.
- [139] T. Renaud, H. Huang, D. Liang, G. Kurczveil, R.G. Beausoleil, and F. Grillot, *Influence of the cavity design on the differential gain and linewidth enhancement factor of a QD comb laser*, SPIE Photonics Europe, Strasbourg, France, 2022.
- [138] T. Renaud, H. Huang, D. Liang, G. Kurczveil, R.G. Beausoleil, and F. Grillot, *Effects of external optical feedback in InAs/InP quantum dot frequency comb lasers on silicon*, SPIE Photonics West, San Francisco, USA, 2022.

- [137] P. Didier, K. Yang, O. Spitz, A. Guillaume-Manca, J. Liu, and F. Grillot, *High-definition video broadcasting with a room-temperature quantum cascade laser emitting in the long-wave infrared domain*, SPIE Photonics West, San Francisco, USA, 2022.
- [136] P. Didier, O. Spitz, D. Diaz-Thomas, A. N. Baranov, L. Cerutti, and F. Grillot, *Analysis of the relative intensity noise in a Fabry-Perot interband cascade laser revealing relaxation oscillations*, 27th International Semiconductor Laser Conference (ISLC), Postdam, Germany, 2021.
- [135] O. Spitz, K. Yang, A. Guillaume-Manca, P. Didier, J. Liu, and F. Grillot, *Multi-Gb/s free-space communication with energy-efficient room-temperature quantum cascade laser emitting at 8.1 μm* , IEEE Photonics Conference (IPC), Virtual Event, 2021.
- [134] P. Didier, O. Spitz, D. A. Diaz-Thomas, A. N. Baranov, L. Cerutti, F. Grillot, *Analysis and simulation of the relative intensity noise in a Fabry-Perot interband cascade laser highlights relaxation oscillations around GHz*, Conference on Mid-IR Optoelectronics: Materials and Devices, Virtual Event, 2021.
- [133] O. Spitz, A. Herdt, J. Wu, G. Maisons, M. Carras, C.-W. Wong, W. Elsässer, and F. Grillot, *Application of chaos synchronization in injected mid-infrared quantum cascade lasers for private free-space communication*, Conference on Mid-IR Optoelectronics: Materials and Devices, Virtual Event, 2021.
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