

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;
- Conference Chair, International Symposium on Physics and Applications of Laser Dynamics IS-PALD, (2013, 2015, 2017, and 2019);
- Optics Express Deputy Editor of the 7th International Symposium on Physics and Applications of Laser Dynamics IS-PALD, Paris, France, 2017;
- Optics Express Focus Editor of the 3rd International Symposium on Physics and Applications of Laser Dynamics IS-PALD, Paris, France, 2013;
- 2015-present: Program Committee of the Physics and Simulation of Optoelectronic Devices XXIII conference at Photonic West, San Francisco, USA;
- 2015-2018: Program Committee of the Quantum Sensing and Nanophotonic Devices XII conference at Photonics West, San Francisco, USA;
- 2020-: Program Committee of Semiconductor Lasers and Laser Dynamics conference at Photonics Europe, Strasbourg, France;
- Program Committee of the IEEE RAPID Conference, Miramar Beach, USA, 2018;
- Program Committee of the European Workshop on Semiconductor Lasers, Bari, Italy, 2018;
- Topic Chair of the IEEE Summer Topical Meetings, Lauderdale, USA, 2019;
- Program Committee of the CLEO Europe Conference (subcommittee Semiconductor Lasers), Munich, Germany, 2021.
- Guest Editor of the Special Issue in "Research and Application of Semiconductor Lasers", MDPI Applied Science, 2021.
- Program Committee of the IEEE International Semiconductor Laser Conference, Postdam, Germany, 2021;

- General Chair of the European Workshop on Semiconductor Lasers, Paris, France, 2021;

Honors, Awards, and Society Offices

- OPN's Year in Optics, (2021);
- IEEE Photonics Technology Letters Best Paper Award, (2021);
- Cover of ACS Photonics, September 15 (2021);
- Innovation Award – The University of New-Mexico, (2020);
- Fellow Member of the SPIE – The International Society for Optical Engineering, (2019);
- Senior Member of the IEEE and IEEE Photonics Society, (2011);
- Senior Member of the Optical Society America, (2019);
- Louise Jumpertz, Nature Springer Outstanding PhD Thesis, (2017)
- Olivier Spitz, Nature Springer Outstanding PhD Thesis, (2020)
- 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. Lett.* vol. 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.* vol. 16, 1661, (2004).
3. F. Grillot, B. Dagens, J. G. Provost, H. Su and L. F. Lester, *Gain compression and above-threshold linewidth enhancement factor in 1.3 μ m InAs-GaAs quantum dot lasers*, *IEEE J. of Quantum Electron.* vol. 44, 946, (2008).
4. L. Jumpertz, K. Schires, M. Carras, M. Sciamanna and F. Grillot, *Chaotic light at mid Infrared wavelength*, *Light: Sciences & Applications*, vol. 5, e16088, (2016).
5. 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*, vol. 2, 066001, (2020).

On-going research grants¹

- 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 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).

Grand Total: ~USD 1,070K

¹**In 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.**

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).

Grand Total: ~USD 670K

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

- [116] 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, vol. 8, 2555, 2021.
- [115] 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, vol. 9, 1550, 2021
- [114] 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, 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)*, vol. 10, 156, Light: Sciences & Applications, 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, vol. 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, vol. 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, vol. 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, vol. 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, vol. 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, vol. 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, vol. 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, vol. 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, vol. 53, p. 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, vol. 127, p. 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*, 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, vol. 2, p. 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, vol. 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, vol. 44, p. 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, vol. 7, p. 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, vol. 25, p. 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, vol. 115, p. 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, vol. 25, p. 1900110, (2019).
- [93] O. Spitz, J. Wu, M. Carras, C.-W. Wong, and F. Grillot, *Chaotic optical power dropouts driven by low frequency bias forcing in a mid-infrared quantum cascade laser*, Scientific Reports, Vol. 9:4451, (2019).
- [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, vol. 31, p. 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).
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- [89] O. Spitz, J. Wu, M. Carras, C. W. Wong, F. Grillot, *Low-frequency fluctuations of a mid-infrared quantum cascade laser operating at cryogenic temperatures*, Laser Physics Letts, **15**, 116201, (2018).
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- [87] J. Duan, H. Huang, D. Jung, Z. Zhang, J. Norman, J. E. Bowers, and F. Grillot, *Semiconductor quantum dot lasers epitaxially grown on silicon with low linewidth enhancement factor*, Applied Physics Letters, **112**, 251111, (2018).
- [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).
- [78] S. Ferré, L. Jumpertz, M. Carras, R. Ferreira and F. Grillot, *Beam shaping in high-power broad-area quantum cascade lasers using optical feedback*, Nature Scientific Reports, **7**, 44284, (2017).

- [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- μm optical communications: An overview*, Semiconductor Nanocrystals and Metal Nanoparticles, pp. 95–125, CRC Press, (2016).
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- [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).
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- [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).
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- [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).
- [66] C. Wang, M. E. Chaibi, H. Huang, D. Erasme, P. Poole, J. Even, F. Grillot, *Frequency-dependent linewidth enhancement factor of optical injection-locked quantum dot/dash lasers*, Optics Express, **23**, 21761, (2015).
- [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).
- [64] M. E. Chaibi, H. T. Nguyen, C. Gosset, F. Grillot, and D. Erasme, *Time resolved chirp measurement based on a polarization-maintaining fiber*, IEEE Photonics Technology Letters, **27**, 1557, (2015).
- [63] H. Huang, K. Schires, P. J. Poole, and F. Grillot, *Non-degenerate four-wave mixing in an optically injection-locked InAs/InP quantum dot Fabry-Perot laser*, Applied Physics Letters, **106**, 143501, (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. Shires, 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).

- [58] R. Raghunathan, F. Grillot, J. K. Mee, D. Murrell, V. Kovanis, and L. F. Lester, *Tuning the external optical feedback-sensitivity of a passively mode-locked quantum dot laser*, Applied Physics Letters, **105**, 041112, (2014).
- [57] C. Gosset, I. Aldaya, C. Wang, H. Huang, X. You, J. Even, G. Campuzano, and F. Grillot, *Self-referenced technique for monitoring and analysing the non-linear dynamics of semiconductor lasers*, Optics Express, **22**, 16528, (2014).
- [56] L. F. Lester, N. A. Naderi, F. Grillot, R. Raghunathan, and V. Kovanis, *Strong optical injection and the differential gain in a quantum dash laser*, Optics Express, **22**, 7222, (2014).
- [55] C.-F. Chuang, Y.-H. Liao, C.-H. Lin, S.-Y. Chen, F. Grillot, and F.-Y. Lin, *Linewidth enhancement factor in semiconductor lasers subject to various external optical feedback conditions*, Optics Express, **22**, 5651, (2014).
- [54] C. Wang, J. Even, and F. Grillot, *Analysis of frequency chirp of self-injected nanostructure semiconductor lasers*, IET Optoelectronics, **8**, 51, (2014).
- [53] C. Wang, F. Grillot, F.-Y. Lin, I. Aldaya, T. Batte, C. Gosset, E. Decerle, and J. Even, *Nondegenerate Four-Wave Mixing in a Dual-Mode Injection-Locked InAs/InP(100) Nanostructure Laser*, IEEE Photonics Journal, **6**, 1500408, (2014).
- [52] Q. Gu, M. Gicquel-Gu  zo, S. Loualiche, J. Le Pouliquen, T. Batte, H. Folliot, O. Dehaese, F. Grillot, Y. Battie, A. Loiseau, B. Liang and D. Huffaker, *Photonics based on carbon nanotubes*, Nanoscale Research Letters, **8**, 300, (2013).
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- [47] C. Wang, F. Grillot, V. Kovanis and J. Even, *Rate Equation Analysis of Injection-Locked Quantum Cascade Lasers*, Journal of Applied Physics, **113**, 063104, (2013).
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- [43] C.-Y. Lin, F. Grillot, N. A. Naderi, Y. Li, J. H. Kim, C. G. Christodoulou and L. F. Lester, *Performance of quantum dot passively mode-locked laser under optical feedback and temperature control*, International Journal of High Speed Electronics and Systems, **20**, 679, (2011).
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Invited Talks

- [42] *Chaos-based mid-infrared communications*, Photonics West, San Francisco, USA, 2022.
- [41] *Mode locking and frequency comb generation by four-wave mixing in a semiconductor quantum-dot active medium*, The Solvay Meeting, Brussels, Belgium, 2021.
- [40] *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.
- [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- μ m 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

- [133] 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.
- [132] 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.
- [131] O. Spitz, J. Wu, P. Didier, D. Diaz-Thomas, L. Cerrutti, A. N. Baranov, G. Maisons, M. Carras, C.-W. Wong, F. Grillot, *Chaos Bandwidth in Mid-infrared Quantum Cascade Photonic Devices with Interband and Intersubband Transitions*, Conference on Lasers and Electro-Optics (CLEO), Virtual Event, 2021.
- [130] O. Spitz, L. Durupt, P. Didier, D. A. Diaz-Thomas, L. Cerutti, A. N. Baranov, M. Carras, and F. Grillot, *Chaos synchronization in mid-infrared quantum cascade lasers for private free-space*

- communication*, IEEE Research and Applications of Photonics in Defense Conference (IEEE RAPID), Virtual Event, 2021.
- [129] O. Spitz, L. Durupt, P. Didier, D. A. Díaz-Thomas, L. Cerutti, A. N. Baranov, M. Carras, and F. Grillot, *High-speed transmissions with direct-modulation room-temperature semiconductor lasers emitting in the transparency window around 4- μ m*, Optical Fiber Communications Conference, Virtual Event, 2021.
- [128] O. Spitz, L. Durupt, F. Grillot, *Toward a turnkey private communication system using a quantum cascade laser emitting at 4 microns*, SPIE Photonics West, Virtual Event, 2021.
- [127] S. Zhao, J. Duan, B. Dong, and F. Grillot, *Effects of Shockley-Read-Hall recombination on the reflection sensitivity of quantum dot lasers directly grown on silicon*, SPIE Photonics West, Virtual Event, 2021.
- [126] S. Cadavid, H. Huang, and F. Grillot, *Temperature tolerance of a hybrid III-V/Si distributed feedback semiconductor laser with a large quality factor*, SPIE Photonics West, Virtual Event, 2021.
- [125] O. Spitz, A. Herdt, G. Maisons, M. Carras, W. Elsaßer, and F. Grillot, *All-optical modulation at mid-infrared wavelength with quantum cascade lasers*, IEEE Photonics Conference (IPC), Virtual Event 2020.
- [124] O. Spitz, A. Herdt, M. Carras, G. Maisons, W. Elsaßer, and F. Grillot, *An indirect determination of the polarization anisotropy in a quantum cascade laser under strong cross-polarization feedback*, OSA Conference on Mid-Infrared Coherent Sources, Virtual Event, 2020.
- [123] O. Spitz, J. Wu, A. Herdt, M. Carras, G. Maisons, W. Elsaßer, C.-W. Wong, and F. Grillot, *Tunable All-Optical Modulation and Building Blocks for Optical Neurons at Mid-Infrared Wavelength*, OSA Conference on Mid-Infrared Coherent Sources, Virtual Event, 2020.
- [122] J. Duan, Y. Zhou, H. Huang, B. Dong, C. Wang, and F. Grillot, *Dynamic properties of two-state lasing quantum dot laser for external optical feedback resistant applications*, International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD), Virtual Event, 2020.
- [121] F. Grillot, G. Callado, T. Verolet, C. Jany, K. Hassan, S. Malhouitre, A. Coquiard, S. Combrie, A. Shen, A. de Rossi, *80 GHz beatnote generation in a single tapered distributed feedback hybrid III-V/silicon laser*, International Conference on Optics and Photonics ICOP, Virtual Event, 2020.
- [120] O. Spitz, J. Wu, M. Carras, G. Maisons, C. W. Wong, and F. Grillot, *Excitability in mid-infrared quantum cascade lasers: from communication jamming to neuromorphic photonics*, Conference on Lasers and Electro-Optics (CLEO), Virtual Event, 2020.
- [119] B. Dong, J. Duan, H. Huang, G. Kurczveil, D. Liang, and F. Grillot, *Study of hybrid silicon quantum dot frequency comb laser dynamic for 5G and datacom applications*, European Conference on Integrated Optics, Virtual Event, 2020.
- [118] B. Dong, X. de Labriolle, H. Huang, J. Duan, S. Liu, J. C. Norman, J. E. Bowers, and F. Grillot, *Resonant optical feedback in epitaxial 1.3 micron passively mode-locked quantum dot lasers on silicon*, Photonics North, Virtual Event, 2020.
- [117] J. F. Ehlert, A. Mugnier, G. He, F. Grillot, *Systematic investigation of the influencing parameters of an external cavity laser with a quantum dot gain chip*, Photonics Europe, Virtual Event, 2020.
- [116] B. Dong, J.-D. Chen, H.-L. Tsay, H. Huang, J. Duan, J. C. Norman; J. E. Bowers, F.-Y. Lin, F. Grillot, *P-doping effect on external optical feedback dynamics in 1.3 micron InAs/GaAs quantum dot laser epitaxially grown on silicon*, Photonics Europe, Virtual Event, 2020.
- [115] O. Spitz, A. Herdt, J. Gu, G. Maisons, M. Carras, C.-W. Wong, W. Elsaesser, and F. Grillot *Peculiarities and predictions of rogue waves in mid-infrared quantum cascade lasers under conventional optical feedback*, SPIE Photonics West, San Francisco, USA, 2020.
- [114] C. Sauvage, C. Robert, B. Sorrente, F. Grillot, and D. Erasme, *Study of short and mid-wavelength infrared telecom links performance for different climatic conditions*, SPIE Remote Sensing, Strasbourg, France, 2019.
- [113] S. Gomez, H. Huang, J. Duan, B. Sawadogo, A. Gallet, A. Shen, S. Combrié, G. Baili, A. deRossi, and F. Grillot, *10 Gbps error-free transmission of a high coherent Si/III-V hybrid distributed feedback laser under strong optical feedback*, IEEE International Photonics Conference, San Antonio, USA, 2019.
- [112] O. Spitz, A. Herdt, M. Carras, W. Elsaesser, and F. Grillot, *High frequency dynamics in quantum cascade lasers: a roadmap to free-space communications in the mid-infrared*, OSA

- Conference on Applications of Lasers for Sensing and Free Space Communications, Vienna, Austria, 2019.
- [111] B. Dong, A. Sawadogo, J. Duan, H. Huang, G. Kurczveil, D. Liang, and F. Grillot, *Linewidth Enhancement Factor and Optical Injection in a Hybrid-Silicon Quantum Dot Comb Laser*, IEEE 16th International Conference on Group IV Photonics (GFP), Singapore, 2019.
- [110] O. Spitz, A. Herdt, M. Carras, W. Elsaesser, and F. Grillot, *Enhanced chaotic performance with optically injected quantum cascade lasers*, IEEE Summer Topical Meetings, Fort Lauderdale, USA, 2019.
- [109] J. Duan, H. Huang, D. Jung, J. C. Norman, J. E. Bowers, and F. Grillot, *Relative intensity noise of silicon-based quantum dot lasers*, Compound Semiconductor Week-Indium Phosphide Related Material Conference (CSW-IPRM), Nara, Japan, 2019.
- [108] J. Duan, B. Dong, H. Huang, Z. G. Lu, P. J. Poole, and F. Grillot, *Thermal dependence of the emission linewidth of 1.52 micron single mode InAs/InP quantum dot lasers*, Compound Semiconductor Week-Indium Phosphide Related Material Conference (CSW-IPRM), Nara, Japan, 2019.
- [107] Y. Zhou, J. Duan, H. Huang, C. Cao, Q. Gong, F. Grillot, and C. Wang, *Self-sustained pulse oscillations in a quantum dot laser monolithically grown on germanium*, European Conference on Lasers and Electro-Optics (CLEO), Munich, Germany, 2019.
- [106] O. Spitz, A. Herdt, M. Carras, W. Elsaesser, and F. Grillot, *Square wave emission in a mid-infrared quantum cascade oscillator under rotated polarization*, Conference on Lasers and Electro-Optics (CLEO), San Jose, USA, 2019.
- [105] O. Spitz, J. Wu, M. Carras, C. W. Wong, and F. Grillot, *Controlling the likelihood of extreme pulses in a quantum cascade laser with optical feedback and bias perturbation*, Conference on Lasers and Electro-Optics (CLEO), San Jose, USA, 2019.
- [104] J. Duan, H. Huang, B. Dong, D. Jung, Z. Zhang, J. Norman, J. E. Bowers, and F. Grillot, *Thermally insensitive determination of the chirp parameter of InAs/GaAs quantum dot lasers epitaxially grown onto silicon*, SPIE Photonics West, San Francisco, USA, 2019.
- [103] O. Spitz, A. Herdt, J. Duan, M. Carras, W. Elsaesser, and F. Grillot, *Extensive study of the linewidth enhancement factor of a distributed feedback quantum cascade laser at ultra-low temperature*, SPIE Photonics West, San Francisco, USA, 2019.
- [102] J. Duan, X.-G. Wang, Y.-G. Zhou, C. Wang, and F. Grillot, *Relative intensity noise properties of quantum dot lasers*, SPIE Photonics Asia, Beijing, China, 2018
- [101] O. Spitz, J. Wu, C.-W. Wong, M. Carras and F. Grillot, *Entrainment of chaotic optical power dropouts driven by weak modulation in a quantum cascade laser with optical feedback*, Conference on Mid-IR Optoelectronics: Materials and Devices, Flagstaff, USA, 2018.
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