

nanoMIR

**Groupe “nanoMIR” / “nanoMIR” group
“Composants à nanostructures pour Moyen Infra-Rouge”
“Nanostructure-based devices for Mid-Infra-Red Applications”**

Publication list (2015)

C-INV : Communications invitées / Invited communications (national or international)

A. Vicet, Q. Gaimard, A. Larrue, L. Cerutti, T. Nguyenba, M. Triki, Y. Rouillard, O. Gauthier-Lafaye, R. Teissier, E. Tournié, New Index-Coupled Distributed-Feedback Gasb-Based Lasers Diodes In The 2 to 3 μm Wavelength Range. Applications To Spectroscopy, 3rd International Workshop on Opportunities and Challenges in Mid-Infrared Laser-based Gas Sensing (MIRSENS 3), 5 – 7 March 2015, Würzburg (Germany).

A.N. Baranov, Antimonide-based quantum cascade lasers, 18th European MBE Workshop (Canazei, Italy, 2015).

P. Christol, M. Delmas, J.B. Rodriguez, E. Giard, I. Ribet-Mohamed, J. Imbert, S. Derelle, V Trinité " *Flexibility properties of type-II InAs/GaSb SL to design MWIR pin photodiodes*", Photonic West SPIE Conference, San-Francisco, USA, February 2015

R. Arinero and J. Castellon, "Nanodielectric spectroscopy and nanoscale space charge detection in nanostructured dielectric films by means of Electrostatic force microscopy", 2015 IEEE Conference on Electrical Insulation and Dielectric Phenomena - (CEIDP), Workshop on nanodielectrics, Ann Arbor, Michigan (USA), 18 Oct - 21 Oct 2015

C. Chevallier, N. Fressengeas, J. Jacquet, G. almuneau, Y. Laaroussi, O. Gauthier-Lafaye, L. Cerutti, and F. Genty, "Parameter-tolerant design of high contrast gratings ", SPIE Photonics West 2015, paper 93720N, San Francisco, USA, 8-12 February 2015 Proceedings of SPIE: High Contrast Metastructure IV, Vol. 9372, art. Numb. 93720N, 2015

G. Almuneau, Y. Laaroussi, C. Chevallier, F. Genty, N. Fressengeas, L. Cerutti, and O. Gauthier-Lafaye "GaAs/AlOx high contrast grating mirrors for mid-infrared VCSELs", SPIE Photonics West 2015, paper 93720S, San Francisco, USA, 8-12 February 2015 Proceedings of SPIE: High Contrast Metastructure IV, Vol. 9372, art. Numb. 93720S, 2015.

E. Tournié, GaSb-based MIR semiconductor materials and lasers, IEEE 2015 Summer Topicals Meeting Series, 13 – 15 July 2015, Nassau (Bahamas).

ACL : Articles dans des revues internationales avec comité de lecture référencées par ISI web / Peer reviewed publications referenced by ISIweb

K. Merghem, R. Teissier, G. Aubin, A. M. Monakhov, A. Ramdane, and A. N. Baranov, *Passive mode locking of a GaSb-based quantum well diode laser emitting at 2.1 μm* , Appl. Phys. Lett. 107, 111109 (2015)

J. Nicolai, B. Warot-Fonrose, C. Gatel, R. Teissier, A. N. Baranov, C. Magen, and A. Ponchet, *Formation of strained interfaces in AISb/InAs multilayers grown by molecular beam epitaxy for quantum cascade lasers*, J. Appl. Phys. 118, 035305 (2015)

- A.A. Leonidov, V.V. Sherstnev, E.A. Grebenschikova, N.D. Il'inskaya, O.Yu. Serebrennikova, R. Teissier, A.N. Baranov, and Yu. P. Yakovlev, *Mode synchronization in a laser with coupled disk cavities*, Tech. Phys. Lett. Vol. 41 No. 8, (2015).
- Alexei N. Baranov and Roland Teissier, *Quantum Cascade Lasers in the InAs/AlSb Material System*, IEEE Journal of Selected Topics in Quantum Electronics 21, 1200612, (2015)
- M. Bahriz, G. Lollia, A.N. Baranov, and R. Teissier, *High temperature operation of far infrared ($\lambda \approx 20 \mu\text{m}$) InAs/AlSb quantum cascade lasers with dielectric waveguide*, Optics Express 23, 1523-1528, (2015)
- Thierry Taliercio, Vilianne NTsame Guilengui, Laurent Cerutti, Jean-Baptiste Rodriguez, Franziska Barho, Maria-José Milla Rodrigo, Fernando Gonzalez-Posada, Eric Tournié, Michael Niehle, and Achim Trampert, *Fano-like resonances sustained by Si doped InAsSb plasmonic resonators integrated in GaSb matrix*, Optics Express 23 (23), 246763 (2015)
- K. Madiomanana, M. Bahri, J.B. Rodriguez, L. Largeau, L. Cerutti, O. Mauguin, A. Castellano, G. Patriarche, and E. Tournié, *Silicon surface preparation for III-V Molecular Beam Epitaxy*, J. Cryst. Growth **413**, 17 (2015).
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- Q. Gaimard, A.Larrue, M.Triki, B.Adelin, T.Nguyen-Ba, Y.Rouillard, O.Gauthier-Lafaye, R.Teissier and A.Vicet. *2.2 μm to 2.7 μm Side wall corrugated index coupled distributed feedback GaSb based laser diodes*. Semicond. Sci. Technol. 30 (2015) 065015.
- Quentin Gaimard, Meriam Triki, Tong Nguyen-Ba, Laurent Cerutti, Guilhem Boissier, Roland Teissier, Alexei Baranov, Yves Rouillard, and Aurore Vicet. *Distributed feedback GaSb based laser diodes with buried grating: a new field of single- frequency sources from 2 to 3 μm for gas sensing applications* Vol. 23, No. 15 | DOI:10.1364/OE.23.019118 | OPTICS EXPRESS 19118 (2015)
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S. Roux, P. Barritault, O. Lartigue, L. Cerutti, E. Tournié, B. Gérard, and A. Grisard "Mid-infrared characterization of refractive indices and propagation losses in GaSb/Al_xGa_{1-x}AsSb waveguides" Applied Physics Letters, Vol. 107 (17), 171901, 2015.

C-ACTI : Communications avec actes dans un congrès international / Communications with proceedings at international conferences.

P. Christol, M. Delmas, R. Rossignol, J.B. Rodriguez, "Influence of the InAs/GaSb superlattice period composition on the electro-optical performances of T2SL infrared photodiode", Proceeding of the 3rd Lasers, Optics & Photonics Conference, J Phys Chem Biophys 5:197, doi:10.4172/2161-0398.1000197, Valencia, Spain, September 2015 : **oral communication**

P. Christol, M. Delmas, J.B. Rodriguez, " InAs/GaSb Nanostructure Engineering to Design Type-II Superlattice MWIR Photodiode", Proceedings of the international conference Nanomeeting 2015, World Scientific Publishing, ISBN 978-981-4696-51-7, Minsk, Belarus, May 2015: **oral communication**

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C-COM : Communications orales sans actes dans un congrès international ou national / Oral communications without proceedings at international or national conferences.

T. Taliercio, Vilianne N'Tsame Guilengui, L. Cerutti, J.-B. Rodriguez, Franziska Barho, Maria-José Milla Rodrigo, Fernando Gonzalez-Posada Florès, E. Tournié, Observation of Fano resonances in highly doped semiconductor plasmonic resonators, SPIE NanoScience + Engineering, 9 - 13 August 2015, San Diego, California United States

T. Taliercio, L. Cerutti, E. Tournié, J. J. Greffet, Franziska Barho, Maria-José Milla Rodrigo, Fernando Gonzalez Posada Florès, Brewster "mode" or how to optically monitor the doping concentration in highly doped semiconductor layers, META15 Conference, New York, USA, 4 – 7 August 2015

T. Taliercio, V. N'Tsame Guilengui, L. Cerutti, J.B. Rodriguez, E. Tournié, Highly doped semiconductor plasmonics for mid-IR applications, The 7th International Conference on Surface Plasmon Photonics, May 31 June 5, 2015, Jerusalem Israel

L. Cerutti, A. Castellano, K. Madiomanana, J. B. Rodriguez, F. Lelarge, and E. Tournié, GaInSb/AlInSb coupled QWs on GaSb for telecom laser, SPIE Photonics West, Opto-2015, Novel In-Plane Semiconductor Lasers XIV, 9 – 12 February 2015, San Francisco, USA, paper 9382-2: oral communication.

P. Borianne, G. Subsol, P. Christol "Capteurs infrarouge « low cost » pour l'analyse spectrale des plantes", Journées Electronique et Environnement du club EEA, Montpellier, Octobre 2015 : communication orale

R. Teissier, M. Bahriz and A.N. Baranov, Fabrication and Modelling of long wavelength InAs/AlSb QCLs, Journées du GDR NanoTeraMIR, Aussois 21-23 septembre 2015

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K. Madiomanana, J.-B. Rodriguez, L. Cerutti, A. Castellano, M. Bahri, L. Largeau, O. Mauguin, G. Patriarche, and E. Tournié, Substrate cleaning process for the MBE growth of Sb-based heterostructures on Si, European Workshop on Molecular-Beam Epitaxy (Euro-MBE 2015), 15 – 18 March 2015, Canazei (Italy): poster.

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S. Roux, P. Barritault, O. Lartigue, L. Cerutti, E. Tournié, B. Gérard and A. Grisard "Mesures Mlines de l'indice de réfraction dans le moyen infrarouge de GaSb et $\text{al}_x\text{Ga}_{1-x}\text{As}_y\text{Sb}_{1-y}$ adapté en maille sur GaSb" Poster: Optique Bretagne 2015, Session JNOG, rennes, 6-9 Juillet 2015.