

## ERIC TOURNIÉ

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### Permanent address:

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### Currently JSPS visiting research fellow at:

The University of Tokyo, Institute for Nano Quantum Information Electronics,

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## EDUCATION

- 1999            **Certification of ability to supervise research** (*Habilitation à Diriger les Recherches, HDR*), University of Nice-Sophia-Antipolis, France.  
*Epitaxy and characterization of semiconductor heterostructures for optoelectronic applications.*
- 1990            **PhD**, University of Montpellier, France (military service in 1986-87)  
*Liquid phase epitaxy of GaInAsSb and InAsSbP solid solutions. Application to the fabrication of lasers and photodetectors operating near 2.5 μm.* Advisor: Prof. A. Joullié
- 1986            **Ingénieur (Master of Engineering)** in Materials Sciences, University of Montpellier, France.

## WORK EXPERIENCE

- 2019 – 2020:    **JSPS fellow**, visiting professor, The University of Tokyo, Prof. Arakawa's group.
- Since 2002:    **Professor, Electrical Engineering Department, Université de Montpellier, UMR CNRS 5214, France.**  
Development of GaSb-based compounds and optoelectronic devices.  
Lecturing in Electrical Engineering and Photonics.  
Head of the "mid-IR optoelectronics" group ([www.nanomir.edu.umontpellier.fr](http://www.nanomir.edu.umontpellier.fr))
- 1993 – 2002:    **CNRS Research Scientist, CNRS, CRHEA, UPR 10, Valbonne-Sophia-Antipolis, France.**  
Wide bandgap II-VI compounds (ZnSe-based) for visible optoelectronics.  
Dilute-nitrides (GaInNAs) for telecom lasers.
- 1993:            **Scientist, Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany.**  
MBE growth of III-V nanostructures on non-(001) substrate orientations.
- 1990 – 1993:    **Scientist, Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany.**  
MBE growth and properties of highly mismatched heterostructures (InAs on InP and GaAs) for IR optoelectronics.  
MBE growth of III-V nanostructures on non-(001) substrate orientations.

## AWARDS - HONORS

- 2014            Senior member, IEEE
- 2012            Senior member, *Institut Universitaire de France (IUF)*
- 1999            Bronze medal from CNRS.
- 1990            Young Scientist Award, *E-MRS, fall meeting.*

## PUBLICATIONS

- ISI WoS data (7<sup>th</sup> Oct 2018): 267 occurrences, 3598 citations, h = 33.
- ~60 invited talks at international conferences.
- ~30 invited talks at national conferences, or seminars at foreign or French laboratories.
- ~130 communications to conferences.
- 10 book chapters.
- Co-editor of 2 books and 3 SPIE proceedings.
- 3 patents

## PATENTS

- *"Monolithic mid-infrared source based on an antimonide laser diode and quasi phase matching"*, A. Grisard, S. Roux, B. Gérard, E. Tournié, L. Cerutti. Ref.: FR3076404-A1 (2019).
- *"Multi-junction III-V solar cell on Si"*, J. Decobert, F. Lelarge, E. Tournié. Ref.: FR3063179 A1 (2018), WO2018153819-A1 (2018).
- *"Laser emission system, heterostructure and active zone having coupled quantum sub-wells, and use for 1.55  $\mu\text{m}$  laser emission"*, L. Cerutti, J.B. Rodriguez, E. Tournié, Ref.: FR20090005726 (2009), WO2011064475 (A1) (2011).

## PHD SUPERVISION

- 3 currently running PhD thesis
- 21 PhD thesis successfully defended between 1996 and 2019.

## SERVICE (main duties)

- **"Fund rising and exhibition Chairperson"**, 34th International Conference on the Physics of Semiconductors (ICPS 2018), 29 July – 3 August 2018, Montpellier (France).
- **General chair** of the 19<sup>th</sup> International Conference on Molecular-Beam Epitaxy, 4 – 9 September 2016, Montpellier, France (<http://www.mbe2016.com>).
- **General co-chair** of the XII<sup>th</sup> "Mid-Infrared Optical Materials and Devices" (MIOMD-XII), 5 – 9 October 2014, Montpellier, France.
- **General chair** of International Symposium on Compound Semiconductors (ISCS), 11 – 15 May 2014, Montpellier, France.
- **Co-chair** of the "Quantum Sensing and Nanophotonics" conference, **SPIE Photonics West**, San Francisco: 2012, 2013, 2014, 2015, 2019.
- **~70 participations to Advisory Boards and Program/Scientific Committees** of international conferences.
- **Associate Editor** Electronics Letters (since 2016).
- **Editorial board member** of IOP J. Phys. D: Applied Physics, in the Semiconductor and Photonics section (2010 – 2016).
- **Expert** for French Ministry of Education and Research (MESRI): expertise of collaborative international research projects (since 2015, ~1 expertise/month).
- **Chair** of the evaluation committee of the nanosciences/nanotech program of the French national research agency (ANR), (2014).
- **Member** of the evaluation committee of the nanosciences/nanotech program of the French national research agency (ANR), (2009 – 2012).
- **Expert for ERC Advanced Grants** (1 expertise in 2014).
- **Expert** for French ANR: several expertises each year.

- **Expert for** French HCERES (institution in charge of evaluating universities and research labs):
  - 2019: Member of the evaluation committee of IRT nanoelec (irtnanoelec.fr/)
  - 2016: **Chair** of the evaluation committee of LMOPS (lmops.univ-lorraine.fr/)
  - 2015: Member of the evaluation committee of IMS (ims-bordeaux.fr)
  - 2014: Member of the evaluation committee of LAAS (laas.cnrs.fr)
  - 2010: **Chair** of the evaluation committee of FOTON laboratory (2010): foton.cnrs.fr/v2012/
- **Elected member** of national research council (CoNRS) in charge of recruiting CNRS scientists in the field of electronics, electrical engineering, optoelectronics, photonics (2012 – 2016, *section 8*).
- 20/65 participations to **HDR/PhD committees** outside my laboratory (15 abroad).

## MANAGEMENT

### University of Montpellier – Research:

Since 2005: **Head of the “nanostructure based devices for mid-IR applications” (nanoMIR) research group of IES.**

- **PI** for UM in the ANR project LightUp “*mid-ir quantum cascade Laser Integrated on Ge-based pHoTonics circuits*”, February 2020 – January 2024. Budget: 288 k€ for UM.
- **PI** for UM in the **H2020** ITN project OPTAPHI “*Optical Sensing using Advanced Photo-Induced Effects*”, January 2020 – December 2024. Budget: 825 k€ for UM.
- **PI** of a “*Découverte Chine*” grant from the French Ministry of Foreign Affairs, 2019.
- **PI** for UM in the **H2020** Photonics KET project REDFINCH “*Mid-InfraRed Fully Integrated Chemical Sensors*”, December 2017 – May 2021. Budget: 492 k€ for UM.
- **PI** for UM in the **H2020** ITN PROMIS “*Postgraduate Research on Dilute Metamorphic Nanostructures and Metamaterials in Semiconductor Photonics*”, January 2015 – December 2018. Budget: 505 k€ for UM.
- **Workpackage leader** (Materials for Energy) in the H2020 ITN PROMIS “*Postgraduate Research on Dilute Metamorphic Nanostructures and Metamaterials in Semiconductor Photonics*”, January 2015 – December 2018.
- **PI** for UM in the ANR project “*ANTIPODE*”: Advanced aNalysis of III-V/Si nucleaTion for highly integrated PhOtonic Devices, January 2015 – June 2018. Budget 52 k€ for UM.
- **Coordinator** of ANR ASTRID project “*GreatGaSby*”: “*Orientation-patterned waveguides for tunable mid-infrared GaSb laser diodes*”. February 2014 – January 2017. Budget: 100 k€ for UM.
- **PI** for UM in the ANR project “*MOREMIR*”: *Multiwavelength Optical micRosourcEs on silicon for Mid-InfraRed integrated sensing*. January 2013 – October 2016. Budget: 120 k€ for UM.
- **Coordinator** of a Franco-German exchange project (2013 – 2014).
- **Coordinator** of ANR project “*OPTOSi*”: *Epitaxial Integration of III-V optoelectronic devices on Si*. November 2012 – August 2016. Budget: 300 k€ for UM.
- **Coordinator of EquipEx “EXTRA: EXcellence cenTeR on Antimonides”, granted in the 2011 call. Budget: 4.2 M€ pour UM.**
- **PI** for UM in the SUDOE **European project** “*TRAIN2*”: *Trans-Pyrenees Action on Advanced Infrastructures for Nanosciences and Nanotechnology*, coordinated by University of Saragoza. 2011 – 2012. Budget: 300 k€ for UM.
- **PI** for UM in a CNRS project, call 2009: *Measuring with quantum cascade lasers: an IR optical insulator based on Faraday effect*. Coordinator: L. Hillico (LKB).
- **Coordinator** of ANR project “*MIRNANO*”: *Mid-IR optoelectronics with Sb-based nanostructure*. April 2009 – March 2012. Budget: 250 k€ for UM2.

- **PI** for UM in the European STREP “NEMIS” (FP6 – 031845): *NEw Mid Infra-Red sources for photonic Sensors*, coordinated by Walter-Schottky Institut (Munich). September 2006 – December 2009. Budget: 530 k€ for UM2.
- **Coordinator** of European STREP “DOMINO” (FP6-017383): *Antimonides-based quantum-dots for nanophotonic devices*. June 2005 – May 2008. Budget: 540 k€ for UM2.

#### **University of Montpellier (UM) and CNRS – Administration:**

- 2012 – 2016: **elected member** of national research council, in charge of recruiting CNRS scientists in the field of electronics, electrical engineering, optoelectronics, photonics.
- 2012: **Deputy Director** of *Sciences Faculty* at UM, in charge of B.Sc. degrees (7 000 students).
- 2010 – 2012: **coordinator** for UM of year-2 and year-3 B.Sc. grades (12 B.Sc., 5 000 students).
- 2008 – 2012: **elected member** of “*Studies and Campus Council*” of UM (CEVU).
- 2003 – 2006: **Director** of the *Electrical Engineering Teaching Department* (50 professors/lecturers, 1 B.Sc. degree, 6 Master degrees, ~500 students).

#### **CRHEA – CNRS**

##### **1999 – 2002: Head of the “New III-V technologies for telecom” team**

- **Coordinator European STREP** FET-IST-2000-26478: *GaInNAs-based Semiconductor Heterostructures for 1.5 μm Opto-electronics* (Budget: 350 k€ for CRHEA).
- **Coordinator** French photonics project: *Non-linear optics in periodic-polarity semiconductors* (Budget: 130 k€).
- **PI for** CRHEA in French project on Micro/Nano technologies: *New III-V semiconductors for very-low voltage transistors for cell phones* (Budget: 130 k€).