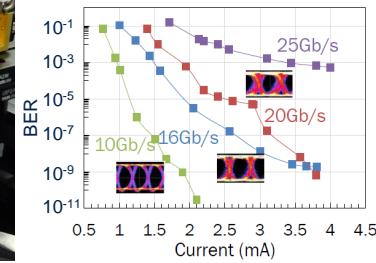
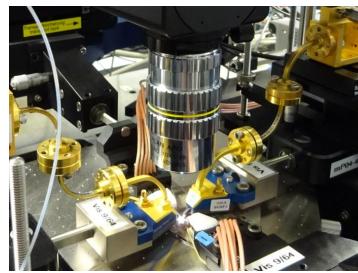


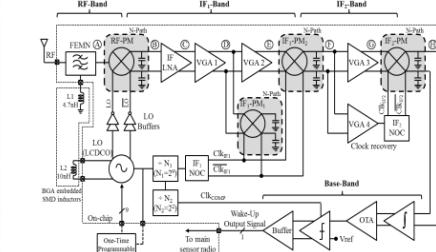
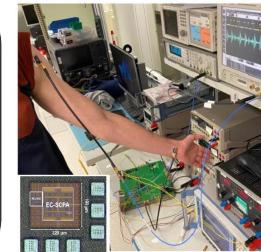
Laboratoire Commun ST-IEMN 20 ans



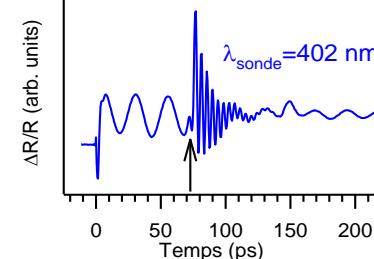
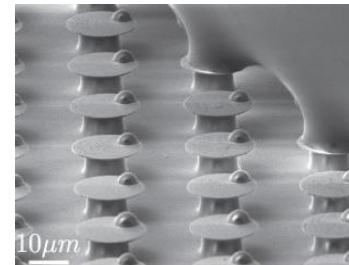
Millimeter-wave datacoms and photonics



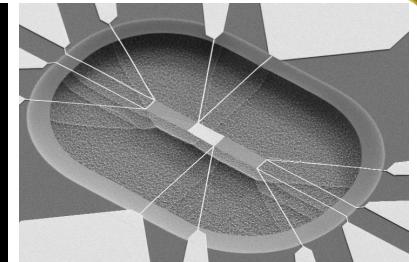
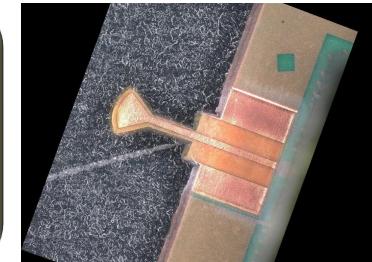
Communication systems and AI hardware



Metrology using high frequency acoustics



Functional packaging and integrated thermics



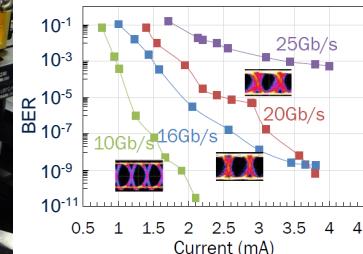
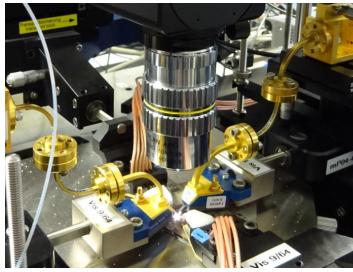
ST-IEMN Joint Laboratory



- 4 Topics
- Since 2003
- 936 Publication products
- 155 Journals
- 445 Conferences
- 49 Inv. Talks
- 65 patents + 135 ext
- 91 PhD Thesis defended
- 18 PhD Thesis on-going
- 2 Start-up
Menapic, MC2
- National Programs NANO
2008/2012/2017/2022
- IPCEI 2026
- 2 EQUIPEX (LEAF, EXCELSIOR)
- 20 European projects shared

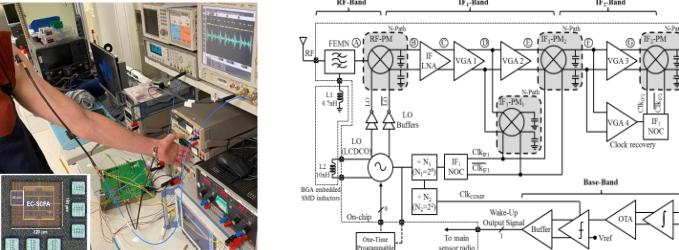
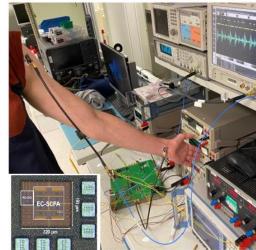
T1

Millimeter-wave datacoms and photonics



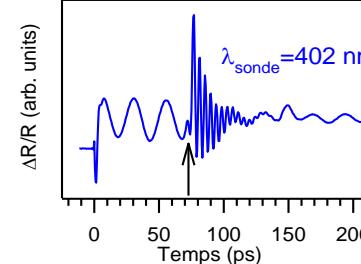
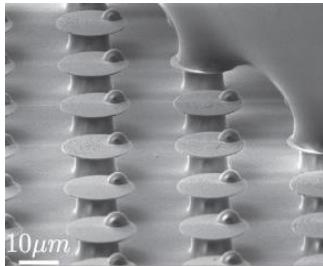
T2

Communication systems and AI hardware



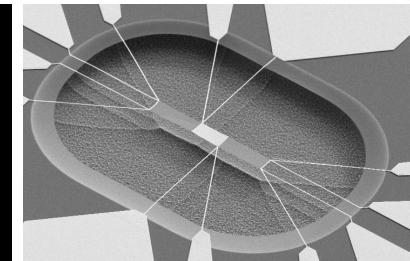
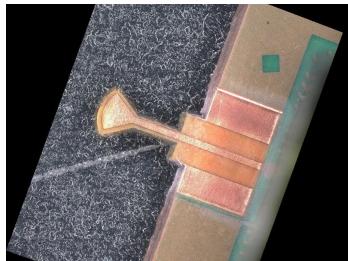
T3

Metrology using high frequency acoustics



T4

Functional packaging and integrated thermics



ST-IEMN Joint Laboratory



Gouvernance

Co-direction LabCom
E. Dubois, A. Cathelin

T1: G. Ducournau
D. Gloria

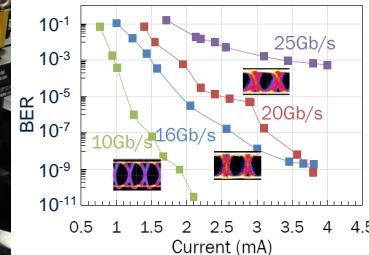
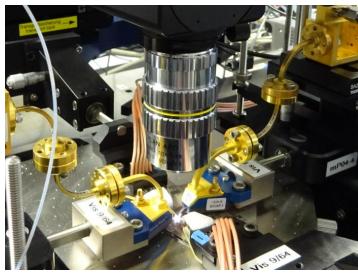
T2: A. Frappé, A. Kaiser
A. Cathelin

T3: A. Devos, J. Carlier
D. Le Cunff, L. Brousseau

T4: J.F. Robillard, E. Dubois
S. Monfray, S. Jeannot, D. Gloria

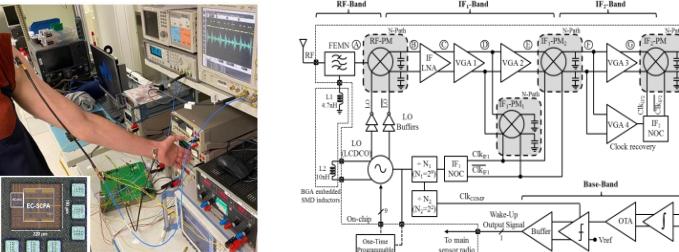
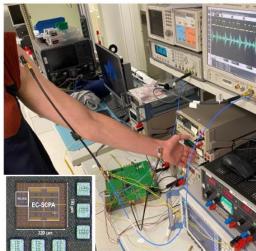
T1

Millimeter-wave datacoms and photonics



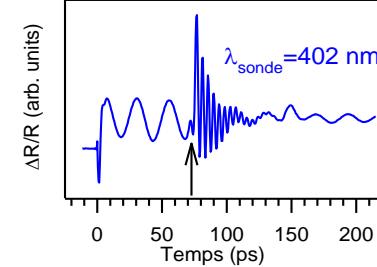
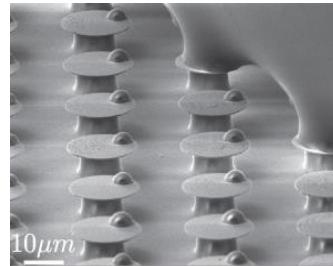
T2

Communication systems and AI hardware



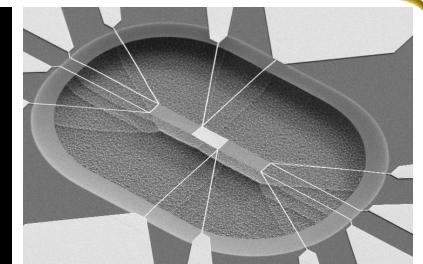
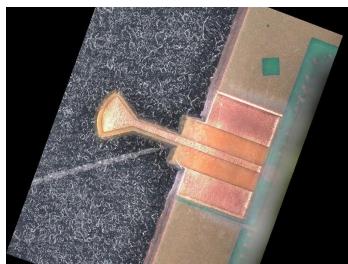
T3

Metrology using high frequency acoustics



T4

Functional packaging and integrated thermics



11

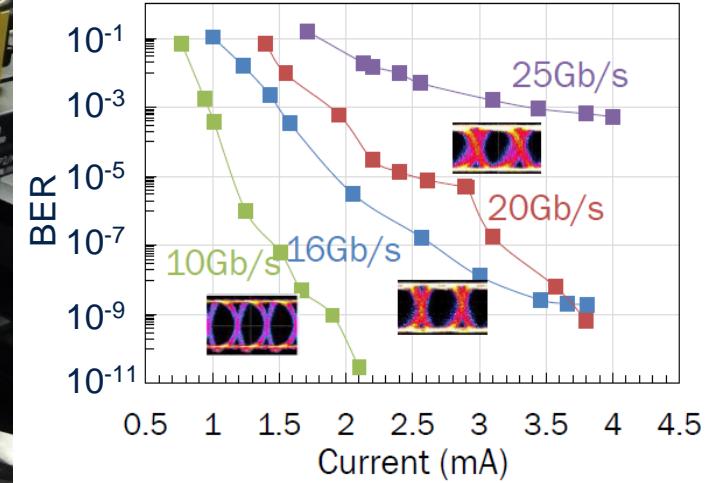
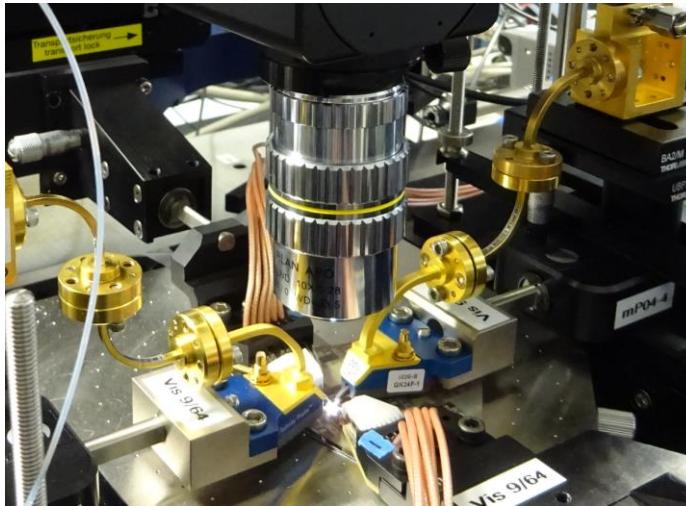
Groups involved in the Joint Lab

- EPIPHY: EPItaxy and PHYSics of heterostructures
- NCM: Nanostructures, nanoComponents & Molecules
- PHYSICS: Nano materials physical properties
- SILPHYDE : PHYSical SImuLation of Electronic and optoelectronic Devices
- SUBLAMBDA: Opto and Micro Electronic Devices
 - THZ PHOTONICS
 - PUISSANCE: Microwave Power Devices
 - ANODE: Advanced Nanometer Devices
 - CARBON: Graphene based devices
 - OPTO: Optoelectronics
 - MITEC: Microtechnology and Instrumentation for Thermal and Electromagnetic Characterization
 - ACOUSTICS
- TPIA: Transduction, Propagation and Acoustic Imaging
- MAMINA: Materials and Acoustics for Micro and Nano integrated systems
- BIOMEMS
- AIMAN-FILMS: Magneto-Nano-Electronics - Active structures, MEMS and flexible structures Ultrasonic thermography - Micro-Fluidics
- NANOBIOINTERFACES
- NAM6: The Micro and Nano Systems
- COMNUM: Digital Communications
- CSAM: Circuits systems and Application of Microwaves
- TELICE: Telecommunication, Interference and Electromagnetic Compatibility
- MICROELEC SI
- WIND group: Wide Bandgap Semiconductor devices



Topic 1

Millimeter-wave datacoms and photonics



IEMN

G. Ducournau
N. Defrance
J.C. Dejaeger
K. Haddadi
F. Danneville

ST

Y. Roelens
M. Zaknoune
E. Okada
S. Lépillet

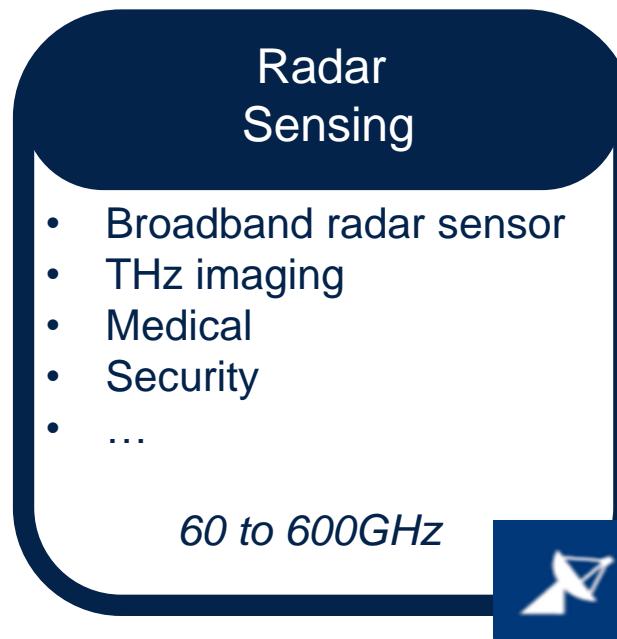
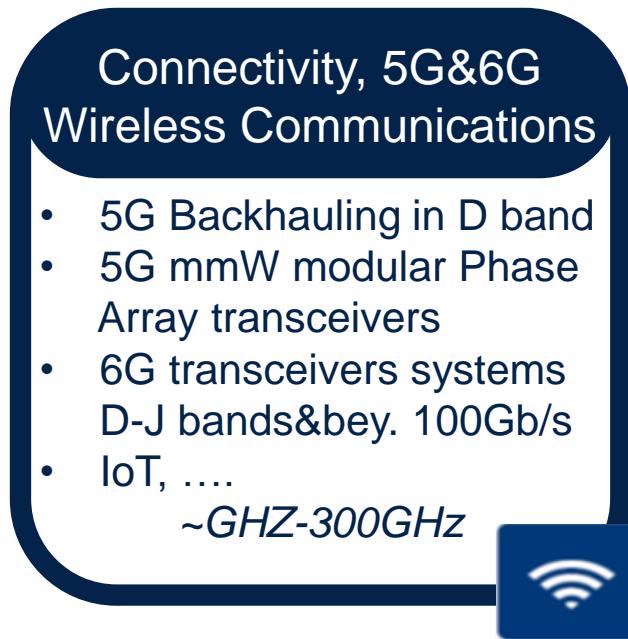
D. Gloria
C. Belem
S. Bouvot
R. Debroucke
P. Chevalier
C. Durand
A. Yvon

PhD/PDoc

D. Ovalle-Taylor
C. Mokhtari
M. Doublet
T. Bordignon
B. Badin
E. Brezza

Technology capability evaluation for RF&mmW: WHY?

- ST technologies targetable applications in the field of RF&mmW



- Need to develop, optimize and model technologies including packaging in Small Signal
Noise
Power
Pattern Rad.
up to THz
- Evaluate devices FOM and demonstrate their capabilities through elementary demonstrators included in system test platform with functionalized package

National level: PIAs

E.U. funded projects (finished)

T1-Scientific ecosystem

Equipex LEAF infrastructure



Laser processing platform for multiFunctional packaging

Micro-nano structuration

Functional packaging for high-frequency & THz



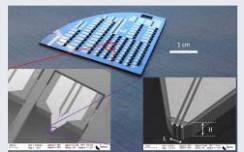
Equipex Excelsior infrastructure



Nanoprobing / high Z

Very small size measurement

THz characterization



ECSEL TARANTO 2017-2021

TowARds Advanced bimcos NanoTechnology platforms for rf and thz applicatiOns

Follow-up: KDT 'SHIFT'



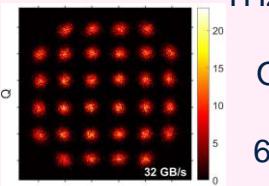
life.augmented

ST-IEMN Common Lab



H2020 ICT THOR 2018-2022

System-level characterization @ THz



Outdoor demo:
300 GHz
645 m (July 22)

Euramet TEMMT 2019-2021

Metrology for high frequency S-parameters (up to 750 GHz),
1.1 THz (2021)

TERAOPTICS ITN Marie-Curie on THz science & technology
THz sensors measurements, metrology

New for 2023: PEPR (PIA4) / IPCEI-ME-CT/ KDT SHIFT

IPCEI-ME-CT 'Nano 2026'

SP03: Development of charac bench for IR sensors

SP04: Heterogeneous integration InP/Si

SP05: Linear, NL charac and enabling functions using mm-wave technologies

SP10: Methods for the characterization of ST's GaN devices

PEPR 5G & Electronics

PEPR 5G

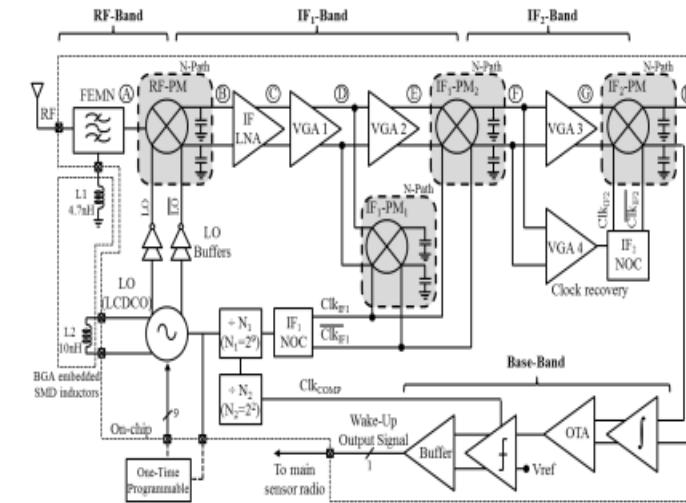
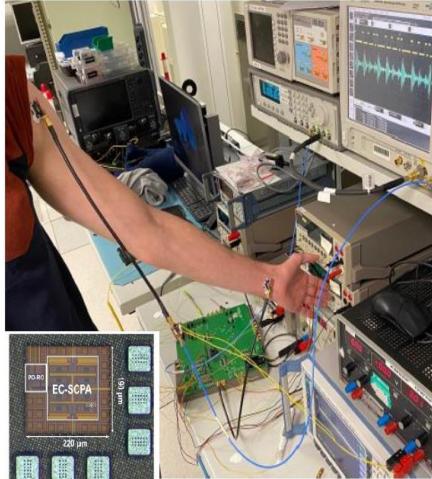
Methods & characterizations for telecom-oriented beyond 5G / Atmospheric studies (propagation)

PEPR Electronics

- THz converters
- THz HBT (III-V, InPoSi)
- THz imaging

Topic 2

Communication systems and AI hardware



IEMN

A. Frappé
B. Larras
A. Kaiser
B. Stefanelli
L. Clavier

ST

A. Cathelin
D. Duperray
P. Cathelin
S. Nicolas
D. Perrin
F. Paillardet
S. Clerc

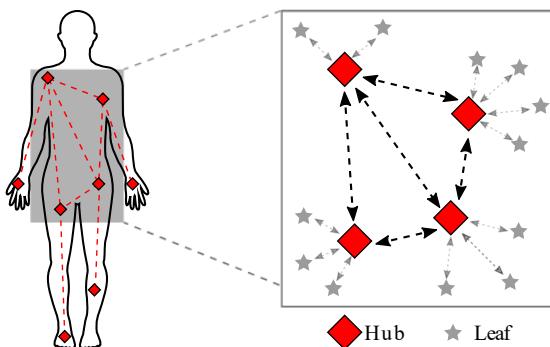
PhD/PDoc

J.B. Casanova
C. Beauquier
S. Richardson
S. Mourrane
J. Cornejo
K. Hérissé
J. Duforest
M. Chene
A. Gautier

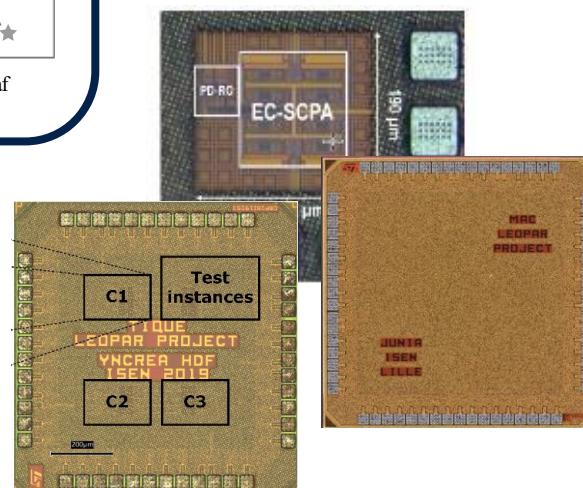
Context and global objectives: WHY?

Integrated Communication Systems

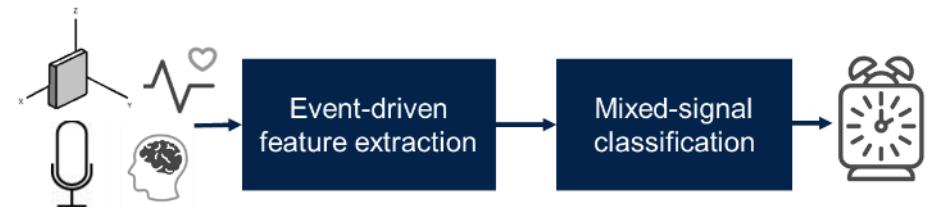
- ULP TX/RX for On-Body Communications Chips
- High-speed TX for SatCom chip
- Ultra-low power ADC for STM32 Connectivity



Demonstrate FDSOI technology opportunities for real-life ultra-low power AIoT chips and systems



Near-sensor computing / AI



Real-life IoT demonstration platform



Ecosystem

On-Body ULP Comms Project
Collaboration with



High speed TX for SatCom
Collaboration with



National support

IPCEI-NANO2022 SP02

Event-driven neuro-inspired circuits



IPCEI-NANO2022 SP03

Large-scale IoT experimentation

IPCEI ME-CT 2026

Ultra-low-power distributed artificial intelligence
circuits for autonomous sensors

ULP In-Memory Computing
Collaboration with



ST-IEMN
Pascal Ancey
Common Lab

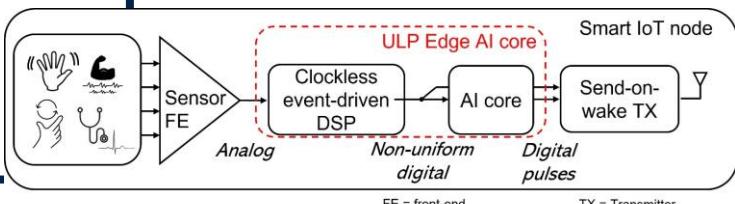


National projects



Low-Energy On-chip
Pre-processing for Activity
Recognition

Audio domain



European Projects

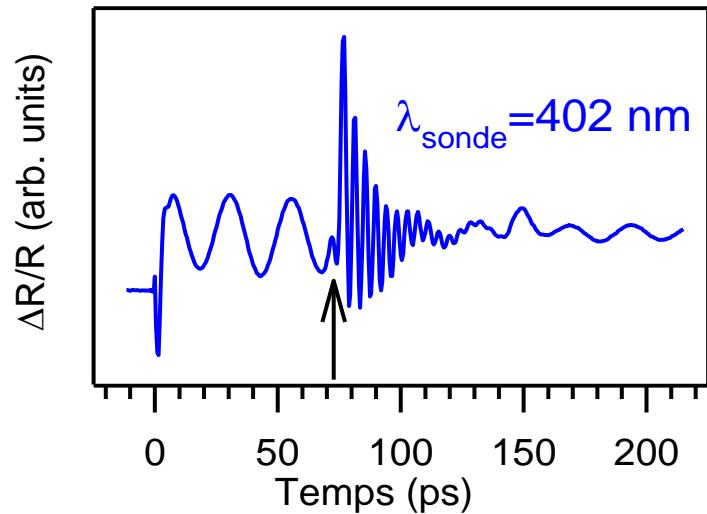
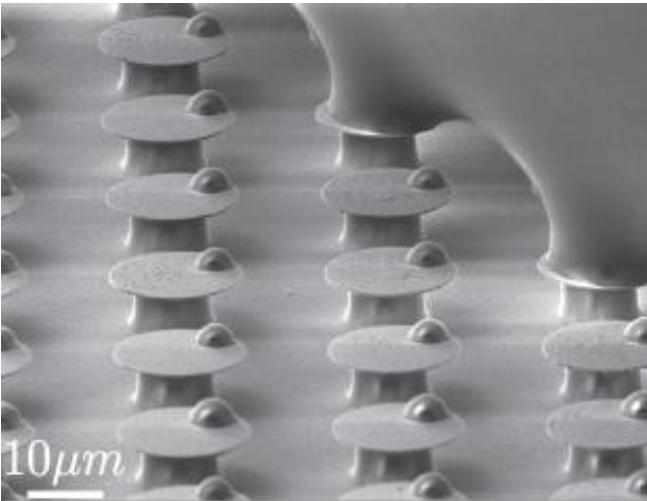


Event Driven Artificial Intelligence
Hardware for Biomedical Sensors

Biomedical domain

Topic 3

Metrology using high frequency acoustics



IEMN

A. Devos
J. Carlier
V. Thomy

ST

L. Broussous
D. Le Cunff
P. Garnier

PhD/PDoc

F. Chevreux
A. Chargui
A. Salhab

Context and global objectives: WHY

Thin Film Characterization

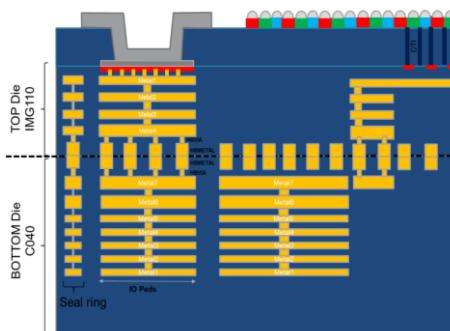
- Elastic properties more and more important
- New soft materials
- New applications with known materials

Interfaces / Defects

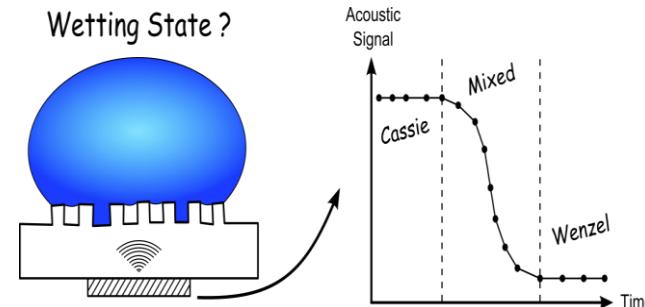
- Interfaces : Bonding / Adhesion / Delaminations
- Voids detection at t_0 or after thermal stress / humidity
- High Aspect ratio structures : wetting / filling / voids

New characterization techniques
are needed

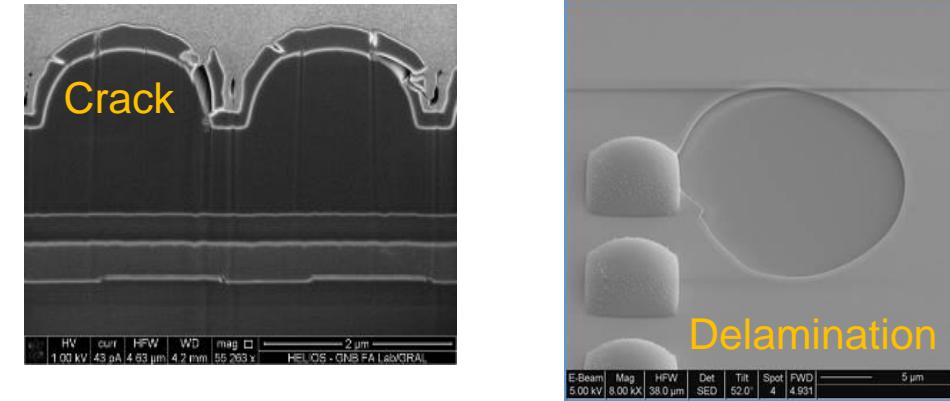
3D integration Wafer to wafer bonding



Deep Trench Isolation Wetting & drying

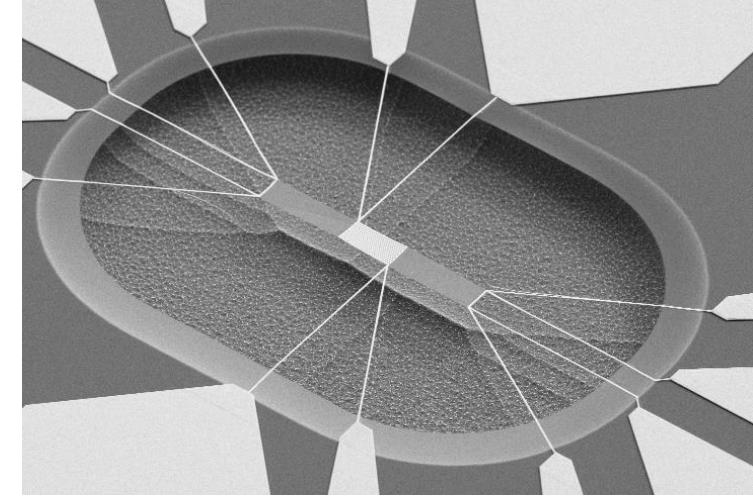
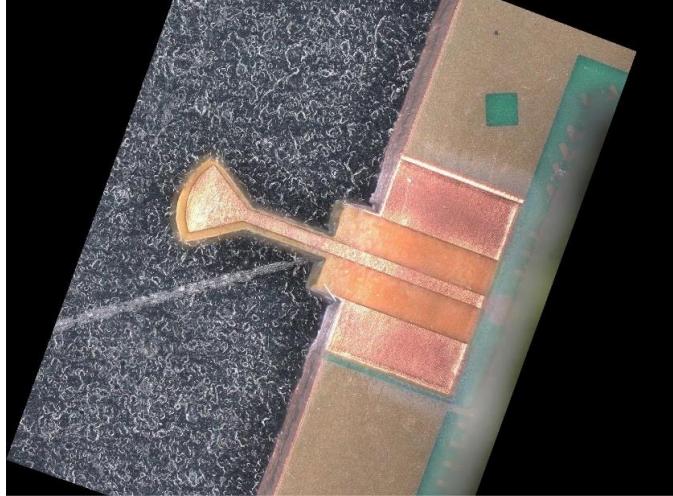


Imagers Micro-lenses covered by dielectrics



Topic 4

Functional packaging and integrated thermics



IEMN

J.-F. Robillard
E. Dubois
E. Blandre
J. Philippe
E. Okada
S. Lépiliert

ST

S. Monfray
A. Fleury
S. Jeannot
R. Simola
J. Sandrini
Y. LeFriec

PhD/PDoc

J. Canosa
M. Brouillard
H. Ikzibane
A. Patil
V. Fiorese
M. Alawar
D. Gheysens
C. Mercier

Context and global objectives: WHY

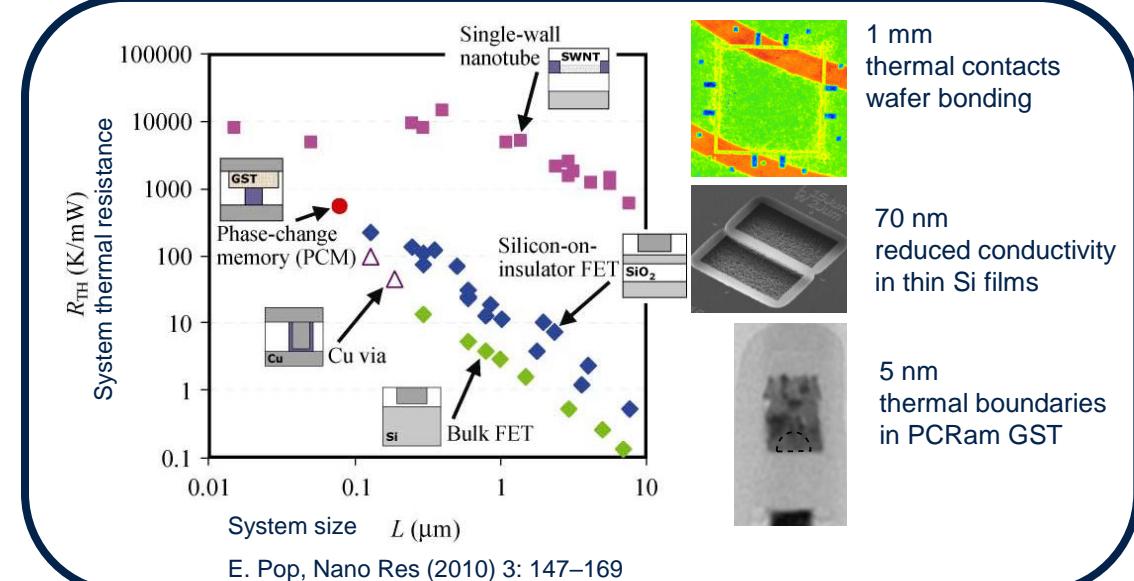
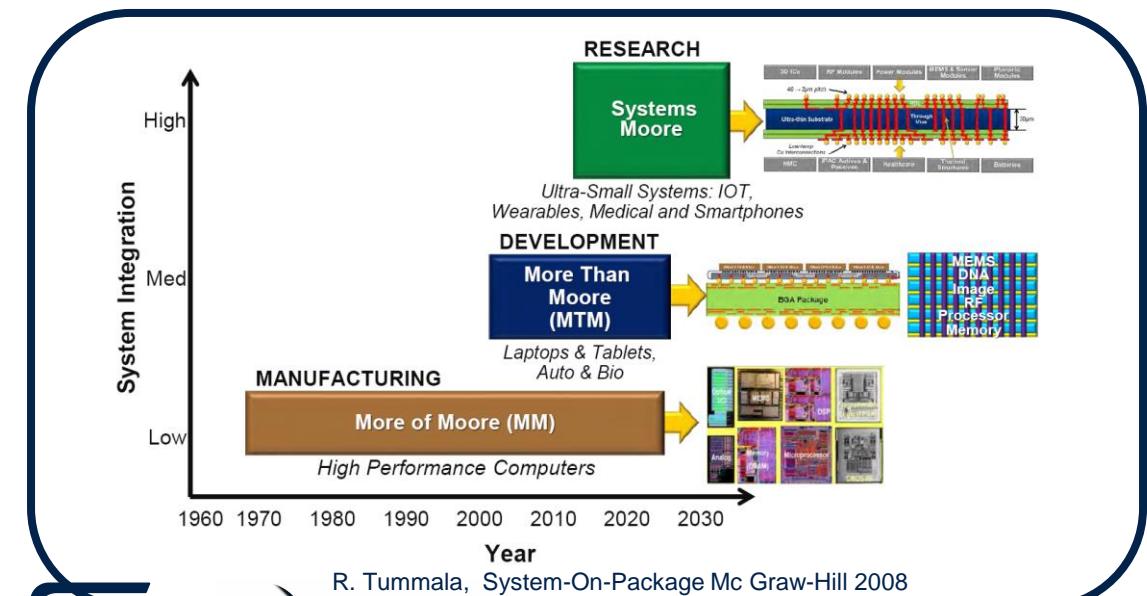
Functional Packaging

- Segment: 5G/6G/Connectivity/ComSAT
- Global need to assess silicon technologies in RF/mmW/THz range from device to package
- Heterogeneous integration in System Moore paradigm

Thermal Management

- Segment: PCM for embedded electronics (MCU automotive, AI, In-Memory Computing)
- Thermal management and metrology from nano to millimeter at device/circuit/system level

Holistic interdisciplinary approach
from nm to mm



T4-Ecosystem

LEAF EQUIPEX infrastructure

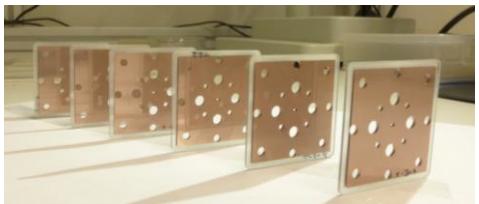


Laser proCessing plAtform
for multiFunctional
packaging

Micro-nano structuration



Functional packaging for high-frequency & THz



LEAF Project outcome

- 46 PhD/PDOC Users
- Support to 60 collaborative projects (ANR,H2020,DGE,ERC..)
- 30 academic partnerships
- 25 industrial partnerships
- > 600 micromachining operations
- > 100 journal/conf. publications



ERC UPTEG Project

*Unconventional Principles
of Thermoelectric Generation*

Leveraging results from:

3 PhD
2 PDoc
10 RICL
1 patent

22 oral com. (IEDM, SSDM...)



ST-IMEIN
Pascal Ancey
Common Lab



Projects



IPCEI-NANO2022
'Fonctional Packaging'
IPCEI ME-CT 2026
'Fonctional Packaging mmW-THz'
TIPTOP
'High sensitivity thermal probes'
HANIBAL
'Heat transport in the quantum limit'
EFFICACE Heat transfer at Si-Metal'

Networks

GDR NAME
'Nanomaterials for Energy'
49 Labs, 402 Researchers

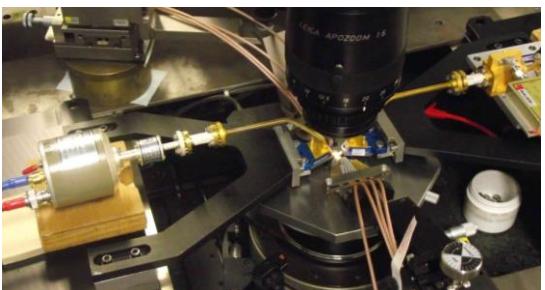


RENATECH
μ/nano fab
network



Institut d'Électronique, de Microélectronique
et de Nanotechnologie
UMR CNRS 8520

Confidentiel ST-IMEIN LabCom

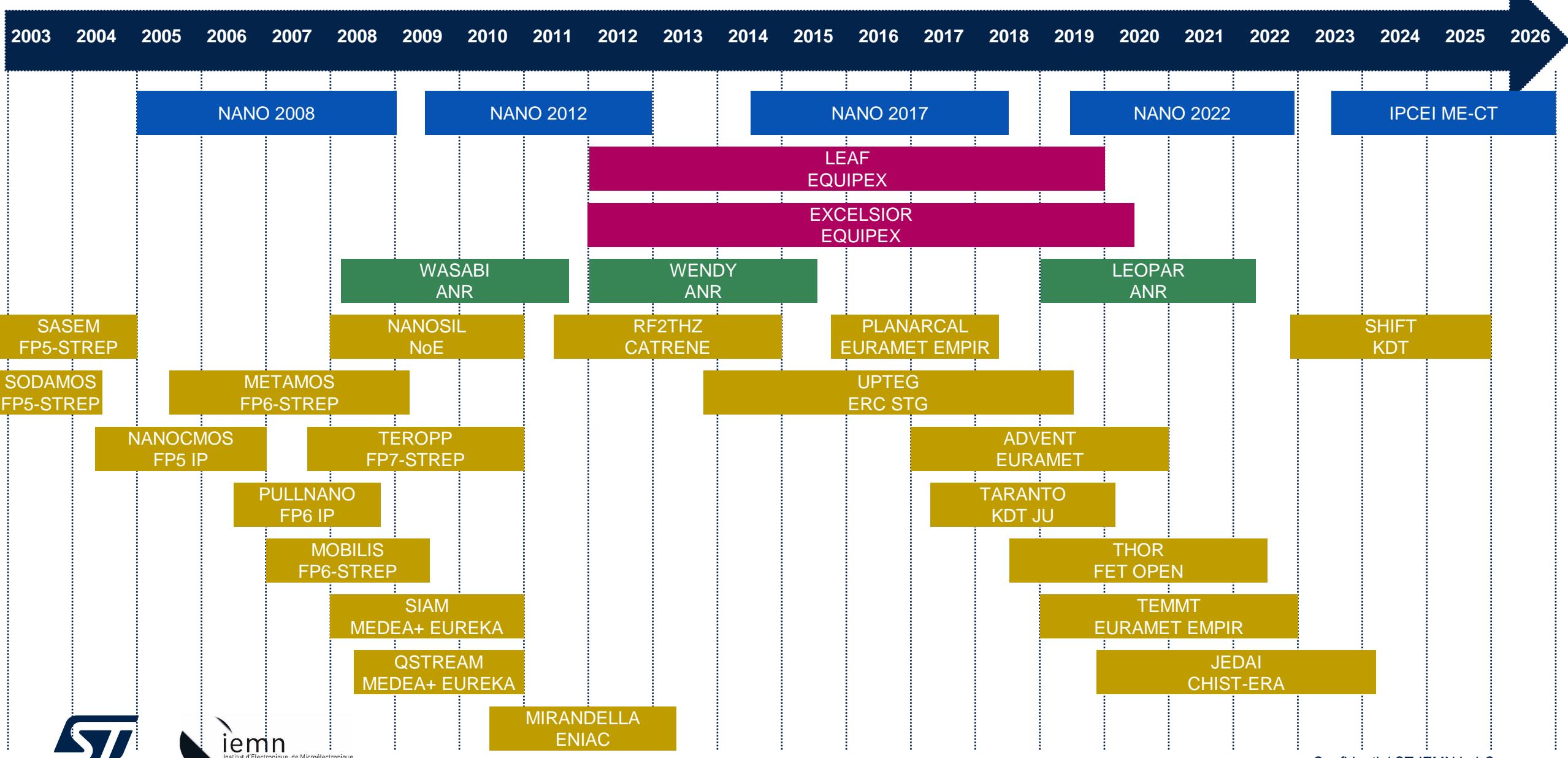


1400m² characterization facility



1600m² clean room facility

30 Collaborative projects

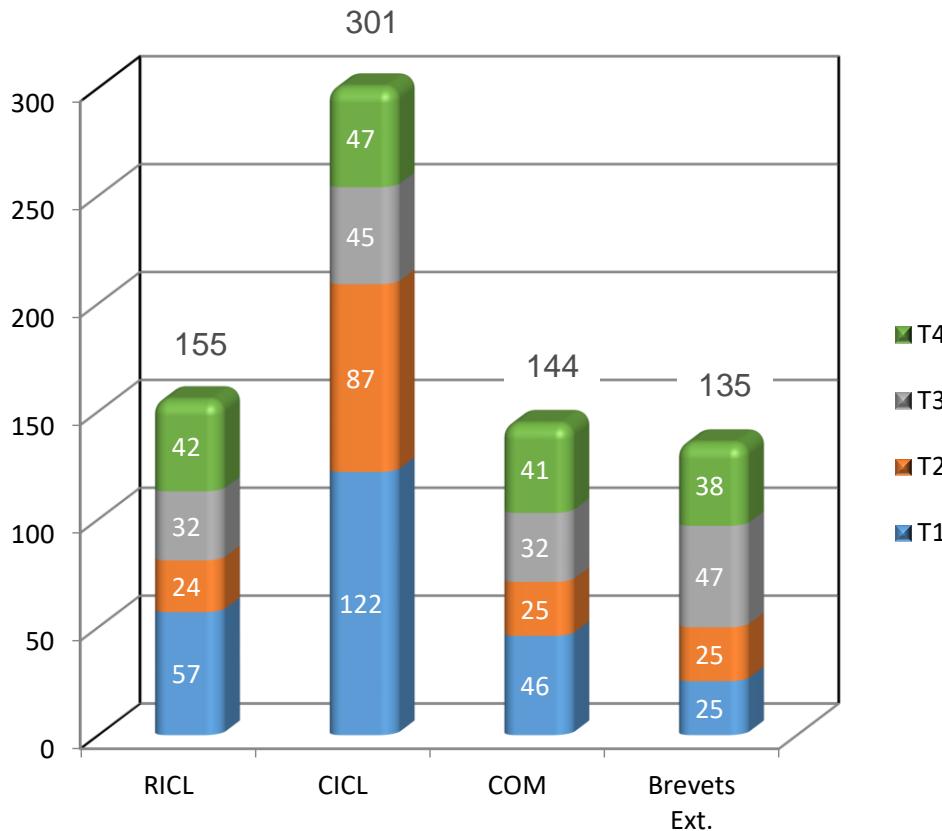


Jan 2003 - Dec 2022 (936 produits de publication)

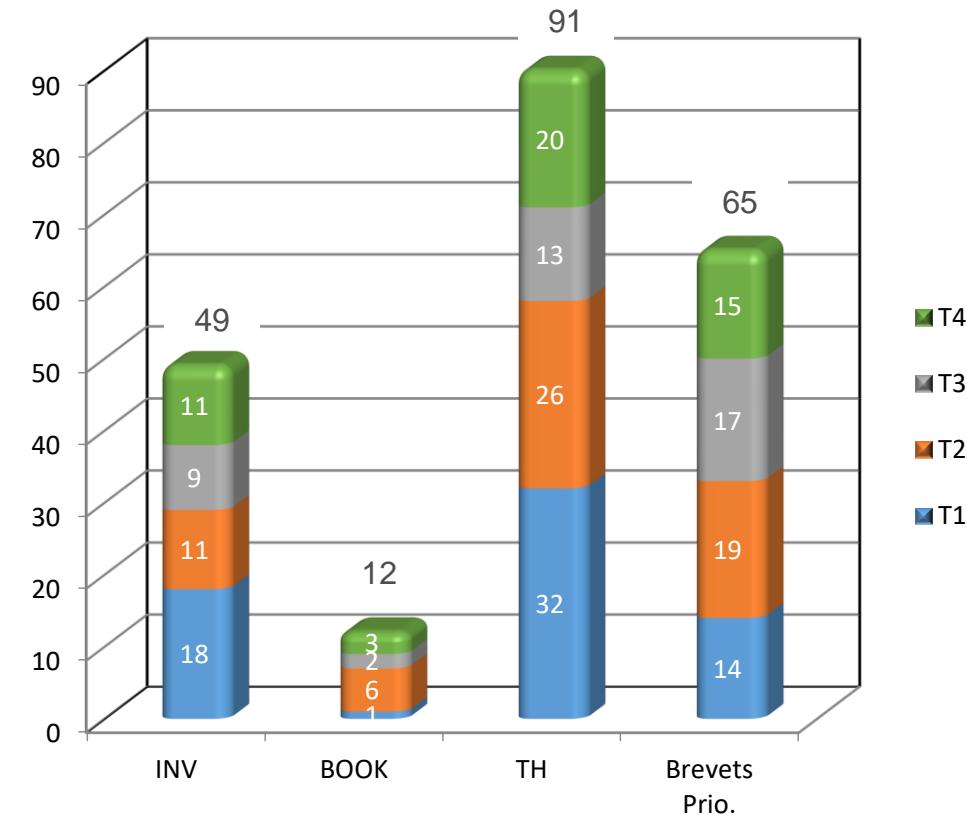
- 155 journaux
- 494 conférences (incl. invitées) } 649

T1: Millimeter-wave datacoms and photonics
 T2: AI hardware and communication systems
 T3: Metrology using high frequency acoustics
 T4: Functional packaging and integrated thermics

Production



RICL= Articles dans une revue internationale à comité de lecture
 CICL= Communications internationales avec actes
 COM= Communications internationales sans actes
 Brevets Ext.= Extensions internationales brevets



INV= Conférences invitées
 BOOK= Direction ou chapitres d'ouvrages
 TH= Thèses soutenues
 Brevets Prio.= Brevets prioritaires

Bilan Thèses

Thèses	ALL	T1	T2	T3	T4
Soutenues	91	32	26	13	20
En cours	18	6	5	1	6
Total (sout. / en cours)	109	38	31	14	26
CIFRE / Total	67	25	18	9	15
CIFRE / Total (%)	62%	65.8%	58.1%	69.2%	57.7%
Poursuite carrière ST	24	11	7	1	5
Poursuite carrière aca.	10	3	2	1	4

Carrière des doctorants (1/2)

Thème	Nom	Prénom	Date Soutenance	Carrière post-Thèse
T1	VANMACKELBERG	Matthieu	oct.-01	MMJ Services
T1	SILIGARIS	Alexandre	déc.-04	CEA
T1	PAVAGEAU	Christophe	déc.-05	INCIZE
T1	PAILLONCY	Guillaume	nov.-05	National Instruments
T1	PRUVOST	Sébastien	nov.-05	ST
T1	BOUHANA	Emmanuel	oct.-07	Patent Examiner, European Commission
T1	MARTINEAU	Baudouin	mai-08	CEA-LETI
T1	VALENTIN	Raphaël	déc.-08	XYTECH Consulting
T1	MORANDINI	Yvan	oct.-08	ST
T1	GEYNET	Baudouin	déc.-08	-
T1	WALDHOFF	Nicolas	déc.-10	MCF EIL Cote d'Opale
T1	TAGRO	Yohann	avr.-10	IC Design, Los Angeles
T1	FOURNIER	David	juin-10	ATOS
T1	POTTRAIN	Alexandre	nov.-12	ST
T1	POULAIN	Laurent	nov.-12	ICRF Normandie
T1	DORMIEU	Benjamin	déc.-12	ST
T1	DEBROUCKE	Romain	nov.-11	ST
T1	LACAVE	Thomas	déc.-11	ALEDIA
T1	CANDERLE	Elodie	déc.-14	ST
T1	OEUVRARD	Sandrine	nov.-14	LYNRED IR products
T1	DENG	Marina	déc.-14	E/C IMS Bordeaux
T1	BOSSUET	Alice	mars-17	NXP

Thèse CIFRE

Thèse Autre financement

Carrière ST

Carrière académique

Thème	Nom	Prénom	Date Soutenance	Carrière post-Thèse
T1	BOUVOT	Simon	mars-18	ST
T1	DAFFE	Khadim	nov.-18	CAT-AMANIA
T1	GAUTHIER	Alexis	mai-19	ST
T1	GONCALVES	Joao Azevedo	mars-19	ST
T1	BELEM GONCALVES	Cybelle	janv.-20	ST
T1	GIDEL	Vincent	oct.-20	MC2
T1	BREZZA	Eduardo	déc.-22	ST
T1	GHANEM	Haitham	déc.-20-	NXP
T1	MAYE	Caroline	sept.-21	LEOS Univ Gustave Eiffel
T1	ALAJI	Issa	nov.-20	NXP
T2	CHAMLA	David	mai-06	ST
T2	FRAPPE	Antoine	dec.-07	JUNIA
T2	RAZAFIMANDIMBY	Stéphane	dec.-07	ST
T2	FLAMENT	Axel	juin-08	JUNIA
T2	GORISSE	Jean	nov.-10	SWATCH (CH)
T2	EGOT	Matthieu	dec.-11	MIRION Technologies
T2	MULLER	Jonathan	sept.-11	E-Peas SA (CH)
T2	CRUNELLE	Romain	dec.-11	Decathlon
T2	ZELENY	Jan	oct.-11	TAE Power solution (CZ)
T2	IZQUIERDO	Cristian	mai-11	NXP (D)
T2	WERQUIN	Arnaud	juin-13	MediTek (UK)
T2	GRAVE	Baptiste	déc.-13	Qualcom (IRL)

Carrière des doctorants (2/2)

Thème	Nom	Prénom	Date Soutenance	Carrière post-Thèse
T2	SHERRY	Hani	déc.-12	TiHive
T2	FOULON	Samuel	mai-13	ST
T2	SALAZAR	Camilo	mar.-15	CSEM (CH)
T2	SOURIKOPOULOS	Ilias	déc.-15	LEO Space Photonics (GR)
T2	GEBREYOHANNES	Fikre	déc.-16	Qualcom (IRL)
T2	MARIN	Cristian	nov.-17	Nordic Semiconductor (SE)
T2	CAUSO	Matteo	Jan.-17	Schindler Group (D)
T2	GONZALEZ	Angel	sept.-20	ST
T2	BENARROUCH	Robin	jan.-21	ST
T2	TOCHOU	Guillaume	fév.-22	ST
T2	HERISSE	Kévin	déc.-22	SATT Nord
T2	MOURRANE	Soufiane	sept.-23	ST
T3	AGACHE	Vincent	oct.-03	CEA
T3	CARUYER	Grégory	nov.05	QORVO
T3	VOLATIER	Alexandre	mars-07	QORVO
T3	EMERY	Patrick	juin-08	MENAPIC
T3	DURAND	Cédric	jan.-09	ST
T3	KONE	Issiaka	avr-10	GENERALI
T3	ROBILLARD	Jean-François	juil-08	JUNIA-ISEN
T3	MANTE	Pierre-Adrien	nov. 10	Ingénieur R&D
T3	CASSET	Fabrice	juin-14	CEA-LETI
T3	VIRGILIO	Christophe	mai-17	Ariane Group

Thème	Nom	Prénom	Date Soutenance	Carrière post-Thèse
T3	SALHAB	Abbas	fev.-22	CEA
T3	CHEVREUX	Fabien	sept.-23	INFINEON
T4	LARRIEU	Guilhem	avr.-04	LAAS-CNRS
T4	PENAUD	Julien	oct.-06	TOTAL PV
T4	CHARBUILLET	Clément	juin-07	ST
T4	FRULEUX	Frédérique	juin-07	THALES
T4	BREIL	Nicolas	mai-09	Applied Materials US
T4	LECESTRE	Aurélie	juil-10	LAAS-CNRS
T4	LECAVELIER	Aurélien	mars-13	THALES
T4	MORINI	François	jun-15	Wootzano (UK)
T4	HARAS	Maciej	jan.-16	CEZAMAT
T4	LACATENA	Valéria	juin-16	XFAB Corbeil
T4	PHILIPPE	Justine	sept.-17	JUNIA-ISEN
T4	NIEBOWJESKI	Heimanu	nov.-14	CEA-LETI
T4	BORREL	Julien	mar.-17	ST
T4	ZHU	Tianqi	déc.-19	BELIMO (CH)
T4	DIDENKO	Stanislav	juin-19	JSC IT Labs
T4	BHASKAR	Arun	oct.-19	QUALCOMM
T4	HIVIN	Quentin	juin-19	KEOPSYS-LUMIBIRD
T4	BAH	Thierno	jui.-19	ST
T4	BOUCAUD	Jean-Marc	juin-20	ST
T4	FIORESE	Victor	sept.-22	ST

Comité de Pilotage et Workshop annuel PhD & Pdocs

2023

- 25 Présentations
- > 200 participants avec l'ouverture du Workshop en visioconférence



ST-IEMN Joint Laboratory - PhD Workshop Program
Tuesday 13 Feb. 2024
Room Mont Blanc

Agenda

08:30 Welcome Coffee

Topic 3		Small-scale elastic metrology using high-frequency acoustic waves
08:45 (LS)		<i>Compatibility study of silicon-based films with lithography resists for imaging applications</i> Fabien CHEVREUX CIFRE PhD defended on 11 Dec. 2023 (Remote presentation) – Supervision A. Devos, LL. Chapelon
09:05 (RS)		<i>Evaluation of Polymer wetting in high aspect ratio nanostructures using FIB and acoustic characterization</i> Abbas SALHAB Post-doc funded under NANO2022 research program (Remote presentation) – Supervision J. Carlier, P. Garnier

LS=Long Slot (16' presentation + 4' questions) RS=Regular Slot (12' presentation + 3' questions) SS=Short Slot (8' presentation + 2' questions)

Topic 1		Potential of advanced technologies in the millimeter wave and photonic domains
09:20 (LS)		<i>Automated and robotic on-wafer probe station for precision Ground-Signal-Ground (GSG) probing</i> Céline MOHKARTI PhD funded under NANO2022 and defended on 05 Dec. 2023 (Remote presentation) – Supervision K. Haddadi, D. Gloria
09:40 (LS)		<i>Characterization & modeling of 650V GaN diodes for high frequency power conversion</i> Martin DOUBLET PhD funded under NANO2022 and defended on 28 Jun. 2023 – Supervision J.C. de Jaeger, N. Defrance, E. Bouyssou
10:00 (RS)		<i>Contribution to the development of THz Sub-Harmonic Mixers in RF-SOI & BiCMOS technologies targeting high-speed communications</i> David OVALIE TAYLOR 3 rd year – CIFRE PhD ST-Univ. Nice-IEMN – Supervision G. Ducournau, C. Luxey, F. Gianesello
10:15 (RS)		<i>Development of InP DHBT technology for sub-THz power amplification in 6G telecoms</i> Abdelmalek ZEMOIR 1 st year – CIFRE PhD ST-IEMN – Supervision M. Zaknoune, P. Chevalier
10:30 (SS)		<i>InP-on-Si Heterojunction bipolar transistor for low noise sub-THz power amplification for 6G telecoms</i> Jihed DEROUICHE 1 st year – PhD funded under IEMN-IPCEI-04 program (Remote presentation) – Supervision M. Zaknoune, P. Chevalier
10:40 (RS)		<i>Topology solutions for Agile Front-End Module at mmW frequencies (140-170GHz) using in situ calibration: D-band phase shifters design, comparison between active and passive approach</i> Larbi BOUKHEZAR 2 nd year – CIFRE PhD ST-TIMA-IEMN – Supervision V. Knopik, M. Margaleff, C. Durand, P. Ferrari, G. Ducournau

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10:55 – 11:15 Break

11:15 (SS)		<i>Contribution to circuit design and advanced characterization for D-band communications applications</i> Yewusew MANALE 1 st year – PhD funded under KDT SHIFT/ANR (Remote presentation) – Supervision G. Ducournau, F. Danneville, D. Gloria
11:25 (SS)		<i>Linear, non-linear, noise and power characterisation of components and realisation of functions in advanced mmW technology</i> Bachar BARIDI 1 st year – PhD funded under IEMN-IPCEI-05 (Remote presentation) – Supervision G. Ducournau, F. Danneville, D. Gloria
11:35 (RS)		<i>RFSOI Technology Development for 5G Applications</i> Thomas BORDIGNON 3 rd year – CIFRE PhD ST – IEMN – Supervision F. Danneville, Y. Roelens, S. Cremer

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LS=Long Slots are allocated to PhD thesis defended in 2023

SS= Short Slots are allocated to freshly started PhD thesis for subject presentation

Topic 4		RF/mmW functional packaging and microthermics
11:50 (LS)		<i>Integrated metrology devices for the study of transport properties in silicon nanostructures</i> Hafsa IKZIBANE PhD funded by Univ. Lille and defended on 29 Nov. 2023 (Remote presentation) – Supervision J.F. Robillard, E. Dubois
12:10 (LS)		<i>Thermal characterization of GeSbTe alloys by Raman thermometry for phase-change memories</i> Akane PAJON CIFRE PhD ST-IEMN defended on 27 Nov. 2023 – Supervision J.F. Robillard, E. Dubois, S. Jeannot, P. Bolvin
12:30 (RS)		<i>Low-temperature heat transfer in SiN and Si: Quantum nanophonics</i> Jon CANOSA-DIAZ 3 rd year – PhD funded under ANR HANIBAL project – Supervision J.F. Robillard
12:45 (SS)		<i>Thermal characterization of emerging materials for PCM non-volatile memories.</i> Tushar CHAKRABARTY 1 st year – CIFRE PhD ST-IEMN – Supervision J.F. Robillard, S. Jeannot

12:55 – 14:30 Lunch

14:30 (RS)		<i>Micromachining and packaging of smart probes for sub-mmW on-wafer measurements</i> Maya ALAWAR 4 th year – PhD funded under IEMN-IPCEI-08 research program – Supervision E. Dubois, G. Ducournau, D. Gloria
14:45 (RS)		<i>Microcavities engineering applied to ultra-fast SOI-RFCMOS devices and circuits for 5G and beyond</i> Daniel GHEYSEN 3 rd year – CIFRE PhD ST-IEMN – Supervision E. Dubois, J.F. Robillard, A. Fleury, S. Monfray
15:00 (RS)		<i>Ultra-fast RF-PCM switches for 5G and beyond</i> Corentin MERCIER 3 rd year – CIFRE PhD ST-IEMN-CEA – Supervision J.F. Robillard, E. Dubois, S. Monfray, A. Fleury, B. Reig

LS=Long Slot (16' presentation + 4' questions) RS=Regular Slot (12' presentation + 3' questions) SS=Short Slot (8' presentation + 2' questions)

Topic 2		Communicating systems and AI hardware
15:15 (LS)		<i>2-Step SAR-assisted digital-slope ADC for ultra-low power radio frequency receivers</i> Jean-Baptiste CASANOVA CIFRE PhD defended on 08 Dec. 2023 – Supervision A. Kaiser, S. Nicolas, D. Perrin
15:35 (LS)		<i>Low power event-driven feature extraction unit for audio keyword spotting in 28nm FD-SOI</i> Souhane MOURKANE CIFRE PhD defended on 11 Dec. 2023 – Supervision – Supervision A. Frappé, B. Larras, A. Cathelin
15:55 (RS)		<i>Event-driven antidictionary-based ECG classification</i> Julien DUFOREST 4 th year – PhD funded under CHIST-ERA JEDAI program – Supervision A. Frappé, B. Larras – Sponsor: A. Cathelin, S. Clerc
16:10 (RS)		<i>A 28nm FD-SOI in-cell weight update scheme using one-hot gradients for on-chip learning</i> Mathieu CHENE 3 rd year – PhD funded by AI_Engineering_PhD@Lille – Supervision A. Kaiser, A. Frappé, B. Larras – Sponsor: A. Cathelin, S. Clerc

16:25 – 16:45 Break

16:45 (RS)		<i>Multiplier-less in-memory artificial neural network in 28nm CMOS FDSOI for embedded biomedical applications</i> Antoine GAUTIER 4 th year – PhD funded under CHIST-ERA JEDAI program – Supervision A. Frappé, B. Larras – Sponsor: A. Cathelin, S. Clerc
17:00 (SS)		<i>Phase change-memory assisted binary neural network machine learning circuit design</i> Joaquin CORNEJO 1 st year – CIFRE PhD ST-IEMN-CEA – Supervision A. Frappé, B. Larras, A. Cathelin, S. Clerc, T. Hirtzel
17:10 (SS)		<i>Passive envelope detector design for wake-up radio in 2.4GHz band</i> Oussama CHAFAI 1 st year – CIFRE PhD ST-IEMN – Supervision A. Kaiser, A. Frappé, R. Welk, M. Ayraud

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17:20 End of Workshop

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SS= Short Slots are allocated to freshly started PhD thesis for subject presentation