AMMINISTRAZIONE CENTRALE
AREA COMUNICAZIONE E MARKETING
SETTORE **UFFICIO STAMPA**
Via VIII febbraio, 2 – 35122 Padova
stampa@unipd.it
http://www.unipd.it/comunicati
tel. 049-8273066/3041

Padova, 20 giugno 2022

IL FUTURO DELL'EFFICIENZA ENERGETICA È NEL NITRURO DI GALLIO
IL PREMIO NOBEL AMANO A PALAZZO FRANCHETTI

Si apre oggi il convegno GaN Marathon 2022 a Palazzo Cavalli-Franchetti, S. Marco, 2847 a Venezia, organizzato con il patrocinio dell'Università degli Studi di Padova e del Dipartimento di Ingegneria dell'Informazione

Gli eventi degli ultimi mesi hanno portato a una significativa fluttuazione dei costi dell'energia, portando alla necessità di un miglioramento dell'efficienza energetica, e di un maggior accesso alle fonti rinnovabili.

La transizione energetica richiede lo sviluppo di sistemi per generare, convertire e trasmettere l'energia in modo efficiente. L'elettronica tradizionale, basata su silicio, non riesce a garantire i livelli di efficienza necessaria perché questa transizione diventi realtà.

Per questo, la ricerca scientifica si sta concentrando su materiali innovativi, che possano sostituire il silicio nei sistemi per la conversione dell'energia.

Uno dei materiali più promettenti è il nitruro di gallio (GaN), oggetto degli studi condotti dai ricercatori giapponesi Hiroshi Amano, Isamu Akasaki e Shuji Nakamura, premi Nobel per la Fisica nel 2014 per l'invenzione dei diodi emettitori di luce, alla base delle attuali sorgenti di luce bianca ad altissima efficienza energetica. Lo stesso materiale permette di realizzare sistemi di trasmissione e di conversione dell'energia più efficienti, con una notevole riduzione dell'energia necessaria.

Da allora la comunità scientifica ha conseguito risultati significativi: il GaN è studiato da ricercatori di tutto il mondo, con importanti ricadute industriali. I campi di applicazione più significativi sono l'automotive (per i veicoli elettrici/ibridi), gli impianti fotovoltaici, i datacenters (per l'internet of things), l'elettronica di consumo.

In questo contesto, il nostro Ateneo gioca un ruolo fondamentale. Si apre oggi (20 giugno 2022) il convegno GaN Marathon 2022, organizzato con il patrocinio dell'Università degli Studi di Padova e del Dipartimento di Ingegneria dell'Informazione.

Il **premio Nobel Hiroshi Amano**, insieme ai professori Srabanti Chowdhury di Stanford University e Debdeep Jena di Cornell University, apriranno la conferenza, delineando il futuro di questo materiale innovativo. Seguiranno tre giorni di workshop e discussione, durante i quali ricercatori e scienziati provenienti da tutto il mondo analizzeranno il futuro di questa tecnologia.

"Il nostro Ateneo collabora con i principali centri di ricerca accademici e industriali, per accelerare l'utilizzo del nitruro di gallio e lo sviluppo di sistemi sempre più efficienti", ha commentato il prof. **Matteo Meneghini**, General Chair della conferenza, che si svolge presso il palazzo Cavalli-Franchetti di Venezia.

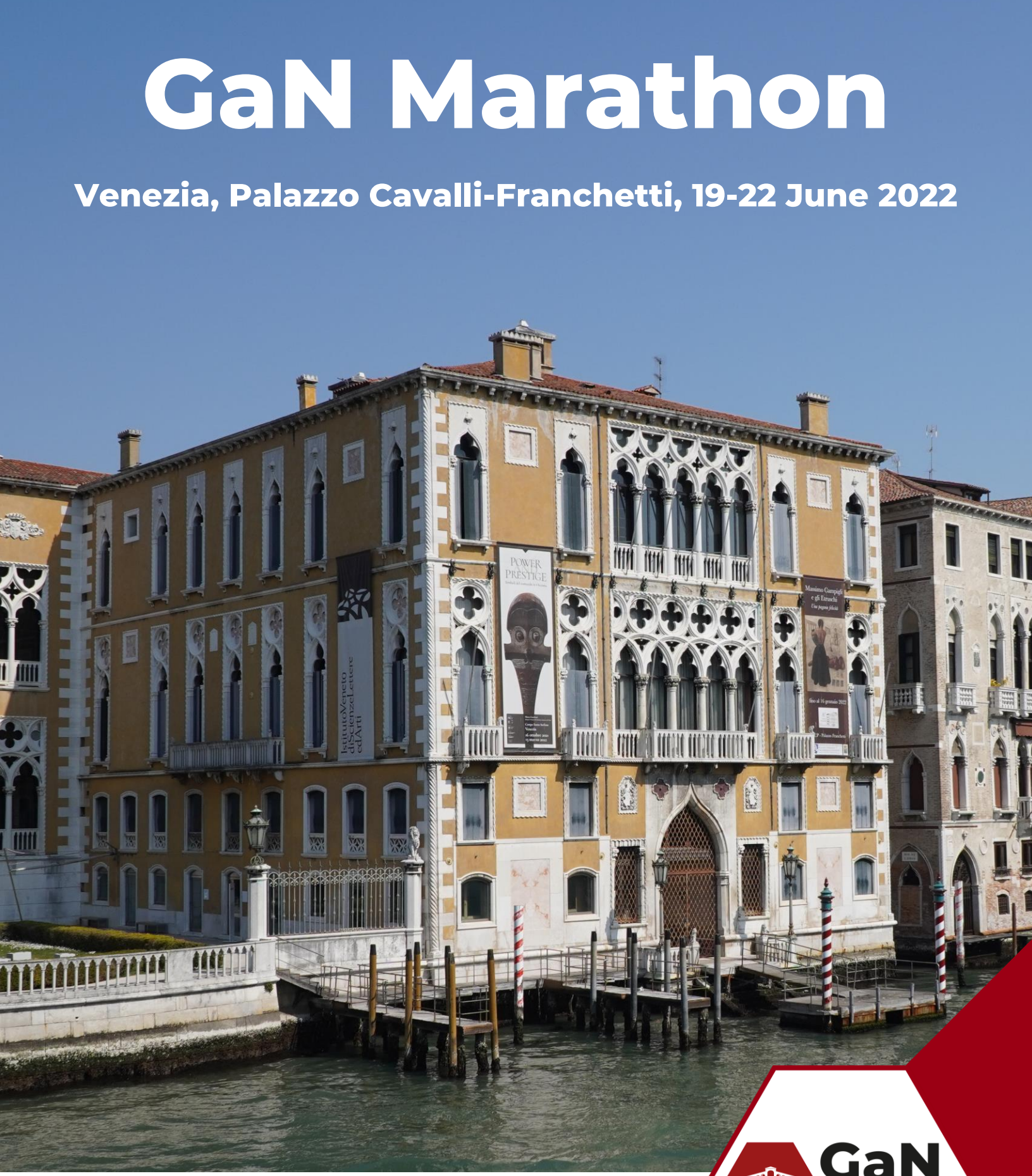
"La collaborazione con il premio Nobel Amano è iniziata nel 2015. Da allora, i nostri dottorandi hanno potuto collaborare con l'eccellente team coordinato dal Prof. Amano, con importanti ricadute in termini di innovazione e visibilità", ha aggiunto il prof. **Enrico Zanoni**.

"Il Dipartimento di Ingegneria dell'Informazione è da sempre attivo nello sviluppo di tecnologie "green", che possano rendere più efficiente la produzione e la conversione dell'energia", ha concluso il prof. **Gaudenzio Meneghesso**, direttore del Dipartimento DEI dell'Università di Padova.

Info:
Sito ufficiale dell'evento: https://ganmarathon.com/
Il programma: https://ganmarathon.com/program-2/

GaN Marathon

Venezia, Palazzo Cavalli-Franchetti, 19-22 June 2022



GaN marathon 2022

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- Gaudenzio Meneghesso (Univ. Padova, Director of host institution)
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	**Palazzo Cavalli-Franchetti**	Wifi credentials: SSID= **IstitutoVeneto_WiFi** Password= **TsjR@q7K**
	Taxi	Tel +39 041 5964 Tel +39 041 716000 info@venezianamotoscafi.it
	COOP Veneziana Taxi	Tel +39 041 716000 info@venezianamotoscafi.it
	Alilaguna	Tel +39/041-2401 701 E-mail: info@alilaguna.it
	Information Office Venice	info@veneziaunica.it
	San Torvaso Restaurant	Sestiere Dorsoduro 967, Venezia Tel: +39 041 5230835
	**Antico Pignolo restaurant: Invited, Committee & Sponsor Dinner, 20th June 2022**	Calle Specchieri 451, Venezia Phone: 041 5228123 Email: info@anticopignolo.com
	Le Maschere restaurant - splendid hotel: Conference Dinner, 21st June 2022	SPLENDID VENICE S. Marco Mercerie, 760, Venezia +39 041 5200755 / +39 041 5286498 Email: reservations.splendidvenice.ve@starhotels.it
	COVID TEST center	Piazzale Roma, 30135 Venezia or Sestiere Dorsoduro, 1454, Venezia
	RAPID COVID TEST - VENICE	https://www.crivenezia.it/tampone-rapido-covid-19-venezia/

Sunday 19th, June

REGISTRATION and WELCOME, from 4:00 to 5:45 PM

Monday 20th, June

8:00 AM	**REGISTRATION and WELCOME**			
8:30 AM	**OPENING CERIMONY - Matteo Meneghini (General Chair)**			
KEYNOTE SESSION, Chair: Enrico Zanoni				
9:00 AM	PNL_1	Plenary	Hiroshi Amano	**Nagoya University**, New III-N devices on parade
9:35 AM	PNL_2	Plenary	Debdeep Jena	**Cornell University,** A Whole New World For Gallium Nitride Electronics
10:10 AM	PNL_3	Plenary	Srabanti Chowdhury	**Stanford University**, Unleashing the full potential of GaN with avalanche and integrated thermal management
10:45 AM	**Coffee break**			
OPTICAL DEVICES 1, Chair: Luca Sulmoni				
11:05 AM	OD_1	Invited	Åsa Haglund	**Chalmers University**, Electrochemical etching – a key enabler for thin-film VCSELs and LEDs?
11:25 AM	OD_2	Invited	Martin Albrecht	**IKZ Berlin**, The role of dislocations in hillock formation in the growth of AlGaN on AlN
11:45 AM	OD_3	Regular	Dominik Meyer	**AIXTRON**, Understanding the mechanism of Ga incorporation in InAlN and InGaN grown by MOCVD
12:00 AM	OD_4	Regular	Patrick Loretz	**Evatec AG**, In-situ Si doped GaN sputtered from the liquid phase
12:15 PM	OD_5	Regular	Anna Kafar	**Institute of High Pressure Physics**, Structural and emission improvement of cyan-emitting InGaN quantum wells by introducing large substrate misorientation angle
12:30 PM	OD_6	Regular	Christian Monachon	**Attolight**, Cathodoluminescence spectroscopy applied to nanoscale strain variation measurement
12:45 PM	OD_7	Regular	Carole Pernel	**LETI**, Effect of plasma process on nGaN surface probed with electrochemical short loop
1:00 PM	OD_8	Student	Jesus Gonzalez Montoya	**Politecnico di Torino**, Trap-assisted tunneling in GaN-based LEDs: a nonequilibrium Green's function study
1:15 PM	**Lunch break**			
POWER GaN TECHNOLOGY, Chair: Gaudenzio Meneghesso				
2:30 PM	PGT_1	Invited	Herbert Pairitsch	**Infineon**, Future 'greener' applications enabled by UltimateGaN
2:50 PM	PGT_2	Invited	Michael Heuken	**AIXTRON**, Epitaxial growth of vertical GaN device layer stacks on 200 mm engineered substrates
3:10 PM	PGT_3	Regular	Christian Manz	**Fraunhofer IAF Freiburg**, AlScN high electron mobility transistor structures grown by metal-organic chemical vapor deposition
3:25 PM	PGT_4	Regular	Patrick Dihele	**Fraunhofer Institute for Microstructure of Materials and Systems IMWS**, A new approach for high resolution TEM analysis of electrically active defects in pGaN HEMT devices
3:40 PM	PGT_5	Regular	Kalparupa Mukherjee	**Cambridge GaN Devices**, Characterization of the novel ICeGaN 650V/8.5 A, 200 mΩ power device technology
3:55 PM	PGT_6	Invited	Peter Moens	**ONSemiconductor**, Steep Subthreshold Transistors: A Gem from the AlGaN/GaN Power Device World
4:15 PM	**Coffee break**			
RF/POWER TECHNOLOGIES and MODELING, Chair: Thomas Detzel				
4:35 PM	RTM_1	Regular	Samaneh Sharbati	**University of Southern Denmark**, Design of high breakdown voltage GaN-based vertical HFETs by the stepped p-Gan buried buffer layers
4:50 PM	RTM_2	Invited	Patrick Fay	**Univ. Notre Dame**, Polarization Engineering for High-Efficiency, High-Linearity mm-Wave Transistors
5:10 PM	RTM_3	Invited	Jose Jimenez	**Qorvo**, Optimizing a linear GaN technology for sub 6GHz applications
5:30 PM	RTM_4	Regular	Michael Mikulla	**Fraunhofer-Institut for Applied Solid State Physics**, Sub-100 nm III-N HEMTs – Operation at the higher mm-Wave Frequencies
5:45 PM	RTM_5	Invited	Matteo Meneghini	**University of Padova**, Trapping and Reliability in Power GaN Transistors: Role of Buffer and Hot Electrons
6:05 PM	RTM_6	Regular	Liverios Lymperakis	**Max-Planck-Institut für Eisenforschung GmbH**, Ab-initio investigations of dislocations induced formation of nanopipes in GaN
6:20 PM	RTM_7	Invited	Andrea Filippi	**KLA Instruments**, Wafer-scale defect inspection of GaN epi and substrate by Candela®

CLOSURE DAY 1, 6:40 PM

INVITED, COMMITTEE & SPONSOR DINNER at 8:00 PM, RENDEVOUZ POINT: PALAZZO CAVALLI-FRANCHETTI at 7:30 PM

Tuesday 21st, June

RF AND POWER GaN 1, Chair: Peter Moens				
8:30 AM	RPG1_1	Student	Rajarshi Roy Chaudhuri	**Indian Institute of Science**, Hot Electron Interaction with C-doped GaN buffer and Resultant Gate Leakage Degradation in AlGaN/GaN HEMTs
8:45 AM	RPG1_2	Invited	Giorgia Longobardi	**Cambridge GaN Devices**, CGD monolithically integrated approach for power devices: The third way
9:05 AM	RPG1_3	Invited	Matteo Uccelli	**Navitas,** Evolution in GaN Power IC integration: Loss-less Sensing and Autonomous Protection
9:25 AM	RPG1_4	Invited	Alex Lidow	**EPC**, GaN Integrated Circuits for More Efficient Motor Drives
9:45 AM	RPG1_5	Student	Mattihas Moser	**Institut für Mikroelektronik Stuttgart**, PECVD SiNx passivation with more than 8 MV/cm breakdown strength for GaN-on-Si wafer stress management
10:00 AM	RPG1_6	Regular	Regine Mallwitz	**TUBraunschweig**, GaN HEMT lifetime modelling as a base for inverter life-time estimation
10:15 AM	RPG1_7	Invited	Romain Gwoziecki	**CEA**, Recent advance in GAN Power devices development at CEA-LETI
10:35 AM	**Coffee break**			
OPTICAL DEVICES and FABRICATION, Chair: Åsa Haglund				
10:55 AM	ODF_1	Invited	Luca Sulmoni	**TU Berlin**, Realizing wide bandgap tunnel junctions for fully transparent MOVPE-grown UV LEDs
11:15 AM	ODF_2	Invited	Georg Bruederl	**ams OSRAM**, Blue and green GaN-based single mode laser for projection – status and challenges
11:35 AM	ODF_3	Invited	Amélie Dussaigne	**LETI**, High In content InGaN alloy by strain reduction: application to native RGB micro-display
11:55 AM	ODF_4	Student	Rinat Yapparov	**KTH Royal Institute of Technology**, Dynamics and recombination of carriers around V-defects in InGaN quantum wells
12:10 PM	ODF_6	Invited	Thomas Weatherley	**EPFL**, Point defects and carrier diffusion length in InGaN/GaN quantum wells
12:30 PM	ODF_7	Student	Muhammed Aktas	**Institute of High Pressure Physics**, InGaN laser diode with P-Cladding Layer Utilizing Polarization Doping
12:45 PM	ODF_8	Invited	Mayank Srivastava	**Indian Institute of Science,** Reliable Enhancement-Mode AlGaN/GaN HEMTs by p-type AlTiO Based Gate Stack Engineering
1:05 PM	**Lunch break**			
RF AND POWER GaN 2, Chair: Farid Medjdoub				
2:35 PM	RPG2_1	Invited	Michael Damman	**Fraunhofer-IAF**, GaN HEMT reliability of RF devices: A technology comparison
2:55 PM	RPG2_2	Invited	Jr-Tai Chen	**SweGaN**, Recent progress in buffer-free GaN-on-SiC HEMT epitaxial heterostructures for microwave and power devices
3:15 PM	RPG2_3	Invited	Ingmar Kallfass	**Univ. Stuttgart and IMS CHIPS**, Threshold Voltage Engineering in Nanohole GaN HEMT Technology at IMS-Chips
3:35 PM	RPG2_4	Student	Alexis Papamichail	**Linköping University**, Compositionally graded channel HEMTs for improved linearity in low-noise RF amplifiers
3:50 PM	RPG2_5	Student	Vincenzo Barba	**EPC/ Polito**, Maximum Peak Current and Junction-to-Ambient delta-temperature Investigation in GaN FETs Parallel Connection
4:05 PM	***Coffee break***			
POWER and APPLICATIONS, Chair: Joachim Wuerfl				
4:25 PM	PA_1	Invited	Gerald Deboy	**Infineon**, Value proposition of GaN devices in high and low power applications
4:45 PM	PA_2	Invited	Elison Matioli	**EPFL**, New technologies for efficient and integrated GaN power devices
5:05 PM	PA_3	Student	Sayak Dutta Gupta	**Indian Institute of Science**, Physics-Based Approach for Mitigation of Dynamic RON in AlGaN/GaN HEMTs with C-doped buffer
5:20 PM	PA_5	Regular	Marc Orsatelli	**CEA**, Study of threshold voltage shift during multipulse hard-switching and impact on dynamic RDSON of GaN/Si power devices
5:35 PM	PA_6	Student	Valentin Garbe	**Institute of Applied Physics**, TU Bergakademie Freiberg, Formation of Au-free Ohmic Contacts for AlGaN/GaN-HEMTs
5:50 PM	PA_7	Regular	Peter Fischer	**Institute of Applied Physics**, TU Bergakademie Freiberg, HRXRD strain and microstructure investigation of AlScN/GaN heterostructures and comparison to electric measurements of the 2DEG
6:05 PM	PA_8	Student	Christian Miersch	**Fraunhofer Institute of Integrated Systems and Devices (IISB)**, Low damage etching of nitride semiconductors

CLOSURE DAY 2, 6:20 PM

CONFERENCE DINNER at 8:00 PM, RENDEVOUZ POINT: PALAZZO CAVALLI-FRANCHETTI at 7:30 PM

Wednesday 22nd, June				
RF AND POWER GAN 3, Chair: William Vandendaele				
8:15 AM	RPG3_1	Regular	Marc Fouchier	**Attolight**, Dislocation type determination by cathodoluminescence
8:30 AM	RPG3_2	Invited	Hao Yu	**IMEC**, Low-Field Transport Modeling to Enable Prediction and Optimization of GaN Heterostructure Sheet Resistance
8:50 AM	RPG3_3	Invited	Joachim Wuerfl	**FBH**, Novel AlN-based power and mm-wave transistors: Technological concepts and performance
9:10 AM	RPG3_4	Invited	Christian Koller	**Infineon**, Understanding Charge Transport and Trapping/Detrapping in GaN Power Devices
9:30 AM	RPG3_5	Invited	Farid Medjdoub	**IEMN-CNRS**, High Power-Added-Efficiency millimeter-wave GaN HEMTs
9:50 AM	RPG3_6	Regular	Giuseppe Greco	**CNR-IMM**, Threshold voltage instability under gate bias Stress in normally-off p-GaN HEMTs
10:05 AM	RPG3_7	Invited	Ferdinando Iucolano	**STMicroelectronics,** Emerging GaN-on Si Technologies: RF and Power Devices
10:25 AM	**Coffee break**			
POWER GaN and TECHNOLOGIES, Chair: Christian Koller				
10:45 AM	DTC_1	Invited	Karen Geens	**IMEC**, Recent Advancements in Vertical GaN Device Development on Engineered Substrates
11:05 AM	DTC_2	Regular	Dan Ritter	**Technion**, On the GaN/AlN interface polarization charge and the polarization-compensating surface charge
11:20 AM	DTC_3	Student	Pedro Fernandes Paes Pinto Rocha	**CEA LETI and CNRS/LTM,** Impact of Post-Deposition Anneal on ALD Al2O3/etched GaN Interface in Gate-First MOSc-HEMT Process Flow
11:35 AM	DTC_4	Regular	Asier Garcia	**IKERLAN**, Low-Profile Bidirectional Wireless Battery Charger for PHEV/EV Vehicles
11:50 AM	DTC_5	Regular	Peter Ramvall	**Division of Digital Systems RISE Research Institutes of Sweden Lund/+Stockholm**, Growth of p-type GaN – The role of oxygen in activation of Mg-doping
12:05 PM	DTC_6	Invited	Enrico Zanoni	**University of Padova**, Degradation and reliability of GaN RF transistors
CLOSURE SESSION, 12:25 PM to 1:00 PM				

Best Student Presentation Award

For each presentation made by a student, you will be asked to evaluate the talk. At the end of the conference, the student with the highest average score will receive the Best Student Presentation Award.

HOW TO VOTE:

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2. Select a score between 1 and 5 and click “Send”.

Thank you for your contribution!