EUROPEAN CURRICULUM VITAE FORMAT

PERSONAL INFORMATION

Name	**VALERIA VADALÀ**
Address	**CORSO ISONZO, 3, FERRARA, 44121 ITALIA**
Telephone	**+393470684762**
E-mail	**valeria.vadala@unimib.it**
Nationality	Italian
Date of birth	25/11/1982

WORK EXPERIENCE

• Dates (from – to)	November 2021 - current
• Name and address of employer	University of Milano Bicocca
• Type of business or sector	Electronics 09/E3
• Occupation or position held	Assistant Professor
• Main activities and responsibilities	Research activity and Educational
• Dates (from – to)	March 2021 – October 2021
• Name and address of employer	University of Rome tor Vergata
• Type of business or sector	Electronics 09/E3
• Occupation or position held	Research Grant
• Main activities and responsibilities	Research activity
• Dates (from – to)	April 2018 – November 2020
• Name and address of employer	University of Ferrara
• Type of business or sector	Electronics 09/E3
• Occupation or position held	Assistant Professor
• Main activities and responsibilities	Research activity and Educational
• Dates (from – to)	January 2012 – December 2017 January 2010 - December 2010
• Name and address of employer	University of Ferrara
• Type of business or sector	Electronics 09/E3
• Occupation or position held	Research Grant as Post. Doc Researcher
• Main activities and responsibilities	Research activity
• Dates (from – to)	January 2011 – August 2011
• Name and address of employer	MEC s.r.l. Microwave Electronics for Communication
• Type of business or sector	Electronics 09/E3
• Occupation or position held	Modelling Engineering
• Main activities and responsibilities	Research and development activity -

EDUCATION AND TRAINING

• Dates (from – to)	January 2007 – December 2010
• Name and type of organisation providing education and training	University of Ferrara
• Principal subjects/occupational skills covered	Characterization and modeling of low frequency dispersive effects in III-V electron devices
• Title of qualification awarded	Ph.D. in Information Engineering

• Dates (from – to)	2004-2006
• Name and type of organisation providing education and training	"Mediterranea" University of Reggio Calabria
• Principal subjects/occupational skills covered	Characterization of implanted diodes in p+/n in 4H-SiC" (in collaboration with IMM-CNR Bologna).
• Title of qualification awarded	Master's Degree in Electronic Engineering (cum laude)
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• Dates (from – to)	2001-2004
• Name and type of organisation providing education and training	"Mediterranea" University of Reggio Calabria
• Principal subjects/occupational skills covered	FPGA implementation of Wavelet transform algorithm
• Title of qualification awarded	Bechelor's Degree in Electronic Engineering (cum laude)

PERSONAL SKILLS AND COMPETENCES

Acquired in the course of life and career but not necessarily covered by formal certificates and diplomas.

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES

[English]

- Reading skills: good
- Writing skills: good
- Verbal skills: good

ORGANISATIONAL SKILLS AND COMPETENCES

Coordination and administration of people, projects and budgets; at work, in voluntary work (for example culture and sports) and at home, etc.

-Since 2007: be a part of the research group of Electronics for communications at the department of Engineering in Ferrara with co-tutoring of Ph.D students and Bechalor's and master student. The experimental activity revolves around a state-of-the-art research laboratory equipped with instrumentation for the characterization of microwave and millimetre-waves devices and circuits under both small- and large-signal operations.
-Since 2021: be a part of the research group of Microelectronics at the department of Physics at University of Milano Bicocca. Activity Is focused on advanced design of analog and mixed-signal integrated circuits for different applications.
-Since 2007: teaching activity as Professor in charge in the framework of bachelor and master courses as Analog Electronics, Electronic Instrumentation and Measurements and Electronic Devices at the University of Ferrara and University of Milano Bicocca.
Tutor or co-tutor for over 40 bachelor and master thesis.

-Since 2021 serves as Associate Editor with International Journal of Numerical Modelling: Electronic Networks, Devices and Fields (Wiley).

Research projects with peer review process

2013, Principal investigator of the research project: "Sostenibilità energetica delle trasmissioni wireless: studio e sviluppo di soluzioni innovative ad elevata efficienza per lo stadio finale di trasmissione". University of Ferrara (program for contract researchers) Duration: 5 months
Other research projects as member of the research team:
- (2020-23) Inter Satellite link V-band solid state power Amplifier Module, (ARTES AT 5C.381) – European Space Agency (ESA) Research Project. Duration: 33 months
- (2019-22) Empowering GaN-on-SiC and GaN-on-Si technologies for the next challenging millimeter-wave applications (GANAPP), PRIN 2017 - Research Project in cooperation with other Italian Universities – Italian Ministry of Education and Research MIUR Duration: 36 months.
- (2020) Highly-Integrated GaN MMICs for High-Power and High-Frequency Operation (Hi3GaN), Italian Space Agency (ASI) - Research contract, in cooperation with MEC s.r.l., Bando competitivo ASI "Nuove Idee per la Componentistica Spaziale del Futuro" 30.11.2016
- (2011-12) Design Techniques for LDMOS FM Power Amplifiers – Regione Emilia Romagna: "Bando per il sostegno a Progetti di Ricerca collaborativa, Attività I.1.2. P.O.R. F.E.S.R. (Fondo europeo di sviluppo regionale) 2007-2013 PRRIITT Misura 3.1 azione A. DGR n. 1043 del 07/07/2008" – Duration: 4 months.
- (2010-12) GaN Power Amplifiers for space applications: design, development and testing (PAGaN) – Agenzia Spaziale Italiana (ASI): "Progetti di Sviluppo Tecnologico 07.08.2007" – Duration: 30 months.
- (2009-11) Design and implementation of an L-band power amplifier for airport and naval radars (RIGENERA) - Regione Emilia Romagna: "Bando per il sostegno a Progetti di Ricerca collaborativa, Attività I.1.2. P.O.R. F.E.S.R. (Fondo europeo di sviluppo regionale) 2007-2013 PRRIITT Misura 3.1 azione A. DGR n. 1043 del 07/07/2008" - Duration: 23 months.
- (2010) Preliminary design of an I/V measurement system for power MOSFETs - Regione Emilia Romagna: "Bando per il sostegno a Progetti di Ricerca collaborativa, Attività I.1.2. P.O.R. F.E.S.R. (Fondo europeo di sviluppo regionale) 2007-2013 PRRIITT Misura 3.1 azione A. DGR n. 1043 del 07/07/2008" - Duration: 9 months.

- (2004-08) TARGET - Top Amplifier Research Groups in a European Team – Rete di Eccellenza, VI Programma Quadro di Ricerca dell'Unione Europea – Duration: 48 months.

TECHNICAL SKILLS AND COMPETENCES

With computers, specific kinds of equipment, machinery, etc.

Excellent knowledge of: ADS (Advanced Design System) MMIC design oriented software , LabView, automatic instrumentation control program, Matlab a numerical computing environment.

- Excellent knowledge of electronic instrumentation from DC up to mmWave frequency for electron device characterization, digital oscilloscope , Network Analyzer, spectrum analyzer, Waveform generator ,LCR meter, scalar and vectorial load-pull setups.

DRIVING LICENCE(S)

B , A, A2

ADDITIONAL INFORMATION

Brief Description of research activities and publication

Valeria Vadalà research activity is mainly related to the development of novel measurement systems for the characterization of microwave electron devices and to the implementation of new nonlinear transistor model formulations and extraction techniques. Most part of research activities was developed using Gallium Nitride (GaN), which is the most important and promising technology for microwave applications due to its excellent properties that enable at millimetre frequencies higher power levels with higher efficiency with respect to well-assessed technologies as Gallium Arsenide or Silicon. These excellent features enable the GaN as natural candidate for the development of the forthcoming 5G\6G circuits.

Summarizing, the research activities can be divided in two main research topics:

- Development of measurement systems for the characterization of electron devices
- Nonlinear models of electron devices accounting for low-frequency dispersion phenomena

Development of measurement systems for the characterization of electron devices

Concerning the development of measurement setups, the aim was to implement alternative methods that can overcome the limitations of setups already proposed in literature for the linear and nonlinear characterization of microwave transistors. These limitations are related, for example, to the strong differences between the transistor actual operating conditions and the characterization ones (e.g., pulsed measurement setups) or to the cost of setups (e.g., microwave nonlinear measurement systems with multi-harmonic tuning feature).

To overcame these limitations, a low-frequency measurement setup based on sinusoidal excitations was proposed in [24], [73], that enables the correct characterization of the nonlinear behaviour of the drain-current generator under actual operating conditions and accounting for low-frequency dispersion phenomena. The setup is based on general purpose instrumentation typically present in a research laboratory. Due to low-frequency operation, the setup calibration procedure and transistor characterization at very high-power levels are easy to handle. This measurement setup results of great interest for different foundries that produce electron devices, since the technique allows one to simply and accurately evaluate the achievable performance and quality of the technological process under investigation [53], [39], [40], [41], [46].

The characterization technique proposed in [27] has been enhanced by adding the possibility to excite the device simultaneously with the large-signal at low frequency, that sets the trap and thermal states of device, and a small-signal at high frequency, named RF-tickle, that is aimed to excite the linear and nonlinear dynamic elements. Since the RF tickle is a small signal, i.e., its harmonics can be neglected, its frequency can be set up to the upper frequency limit of the instrument used for acquiring the measurements. This technique, called Dynamic Bias [13], [18], [54], [52], [51], enables the simultaneous characterization of both resistive and dynamic nonlinearities of the device current generator. The Dynamic Bias setup is integrated with the possibility to sweep the frequency of the RF-tickle and this enables the calculation of S-parameters under dynamic-bias operation [16]. The S-parameters under dynamic-bias operation have been used to develop an alternative technique for the evaluation of performance degradation in power amplifiers for radar application [7].

Using the low-frequency measurement setup a new design methodology oriented to the design of power amplifier was proposed [22]. This technique enables the possibility to draw the load-pull contours, which are a powerful tool to know the best device operating conditions in terms of source and load terminations at fundamental frequency and harmonics, output power, efficiency etc. As a matter of fact, load-pull contours are the most effective tool that power-amplifier designers use for their projects. To obtain load pull contours at the RF frequency of operation it can be used the technique called in literature as “Non-linear Embedding” [23], [75] that is based both on the low-frequency measurements [24], [27] and basic modelling techniques for microwave devices [23]. This technique has been validated firstly in weak nonlinear regime (i.e., class-A power amplifier design [72], [70], [68]) and then applied to the design of high efficiency PAs [49], i.e., class-E [64] and -F [10], [22], [65] and wideband up to E frequency band [63], [66]. Such technique was also adopted to design an X-band monolithic PA [19], [75], for synthetic aperture radar application.

Nonlinear models of electron devices accounting for low-frequency dispersion phenomena

The second research topic deals with modelling issues related to the presence of "surface states" and "traps" in III-V devices. They are responsible for the so called low-frequency dispersion of the characteristics of the electron device which results in a deviation between the static and dynamic I/V characteristics (for example obtained by means of pulsed measurement systems). In [28], [50], [74] a new polynomial model has been proposed, based on parameters that are independent from the intrinsic voltages, and able to guarantee an excellent compromise

between the level of accuracy and simulation times (even in the presence of high dispersive GaN devices). The proposed formulation is extremely general and is based on the idea of using the low-frequency dynamic regime to model the output characteristics by modifying the static I/V characteristics of the device by means of appropriate bias independent correction terms. The validity of this formulation was tested on a GaN HEMT device in the presence of extremely important dispersion phenomena. To obtain high levels of accuracy, the identification of this model has been carried out exploiting non-linear measurements performed with the low-frequency measurement system proposed in [24], [27]. The same formulation was used in [25], [15], [67] using, in the identification phase, high-frequency measurements performed in non-linear regime; in [21], in a simplified form considering only the terms of the model related to thermal phenomena, to model the behaviour of an LDMOS device; in [3] in conjunction with electro-magnetic simulations to model multicell transistors.
Finally, in [20] an innovative description of the I / V characteristics of FET devices for microwave applications was introduced. The basic idea is to use a behavioural description for the current generator and an equivalent circuit description for the strictly non-linear dynamic effects [47].
The research activity on the Dynamic-bias measurement setup [18] has been successfully used to implement a smart extraction technique for nonlinear models under operating conditions close to the actual ones. This technique uses the low-frequency spectrum to extract the current-generator model and the high-frequency spectrum to extract the nonlinear dynamic effects [17], [18]. The validity of this extraction technique has been proved by using the well-known Angleov model formulation to model both a GaAs pHEMT device, used for the design of a mixer at 40 GHz [18], and a GaN HEMT device, used for power-amplifier design [51], [13]. The dynamic-bias measurements were used also to extract a “hybrid” formulation where the current generator model is implemented with the polynomial formulation in [28] and the nonlinear charge behaviour by adopting the Angelov formulation [52].

Pubblication List

International Journal ISI\Scopus

[1] **V. Vadalà**, G. Crupi “Guest editorial for the special issue on modeling of μmWave and mmWave electronic devices for wireless systems: Connecting technologies to applications”, International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, 34(5), e2940, 2021. DOI: 10.1002/jnm.2940

[2] A. Jarndal, G. Crupi, A. Raffo, **V. Vadalà**, G. Vannini “An Improved Transistor Modeling Methodology Exploiting the Quasi-Static Approximation” IEEE Journal of the Electron Devices Society, vol. 9, pp. 378 – 386, 2021. DOI: 10.1109/JEDS.2021.3067103

[3] A. Raffo, **V. Vadalà**, H. Yamamoto, K. Kikuchi, G Bosi, N. Ui, K. Inoue, G. Vannini “A New Modeling Technique for Microwave Multicell Transistors Based on EM Simulations,” in IEEE Transactions on Microwave Theory and Techniques, vol. 68, no. 7, pp. 3100-3110, July 2020. CS (2019) 7.4, IF(2019) 3.41, citations 0. DOI: 10.1109/TMTT.2019.2961078.

[4] G. Crupi, A. Raffo, **V. Vadalà**, G. Vannini, D. M. M.-P. Schreurs and A. Caddemi, “Scalability of Multifinger HEMT Performance,” in IEEE Microwave and Wireless Components Letters, vol. 30, no. 9, pp. 869-872, Sept. 2020. CS (2019) 5.3, IF(2019) 2.31. DOI: 10.1109/LMWC.2020.3012181.

[5] G. Crupi, A. Raffo, **V. Vadalà**, G. Vannini, A. Caddemi, “High-periphery GaN HEMT Modeling up to 65 GHz and 200 °C,” Solid-State Electronics, Elsevier, Feb. 2019, vol. 152, pp. 11-16. CS (2019) 3.4, IF(2019) 1.437, citations 6. DOI: 10.1016/j.sse.2018.11.006

[6] P. Luo, F. Schnieder, O. Bengtsson, **V. Vadalà**, A. Raffo, W. Heinrich, M. Rudolph, “A Streamlined Drain-Lag Model for GaN HEMTs Based on Pulsed S-Parameter Measurements,” International Journal of Microwave and Wireless Technologies, Cambridge University Press, Mar. 2019, vol. 11, pp. 121-129. CS (2019) 2.1, IF(2017) 0.94, citations 0. DOI: 10.1017/S1759078719000060

[7] A. Raffo, G. Avolio, **V. Vadalà**, G. Bosi, G. Vannini, D.M.M.-P Schreurs, “Assessing GaN FET Performance Degradation in Power Amplifiers for Pulsed Radar Systems,” IEEE Microwave and Wireless Components Letters, Nov. 2018, vol. 28, pp. 1035-1037. CS (2017) 2.5, IF(2017) 2.169, citations 1. DOI: 10.1109/LMWC.2018.2867732

[8] G. Crupi, A. Raffo, **V. Vadalà**, G. Vannini, A. Caddemi, “Current-Gain in FETs Beyond Cut-Off Frequency,” Microwave and Optical Technology Letters, Wiley, Dec. 2018, vol.

60, pp. 3023-3026. CS (2017) 0.99, IF(2017) 0.948, citations 2. DOI: 10.1002/mop.31449

[9] G. Crupi, A. Raffo, **V. Vadalà**, G. Vannini, A. Caddemi, "A New Study on the Temperature and Bias Dependence of the Kink Effects in S22 and h21 for the GaN HEMT Technology," Electronics, MDPI, Dec. 2018, vol. 7, article number 353. CS (2017) 3.01, IF(2017) 2.110, citations 5. DOI: 10.3390/electronics7120353.

[10] G. Bosi, A. Raffo, F. Trevisan, **V. Vadalà**, G. Crupi, G. Vannini "Nonlinear-Embedding Design Methodology Oriented to LDMOS Power Amplifiers," IEEE Trans. Power Electronics, Oct. 2018, vol. 33, pp. 8764-8774. CS (2017) 9.08, IF(2017) 6.812, citations 7. DOI: 10.1109/TPEL.2017.2783046

[11] G. Crupi, A. Raffo, **V. Vadalà**, G. Avolio, D.M.M.-P Schreurs, G. Vannini, A. Caddemi, "Technology-Independent Analysis of the Double Current-Gain Peak in Millimeter-Wave FETs," IEEE Microwave and Wireless Components Letters, Apr. 2018, vol. 28, pp. 326-328. . CS (2017) 2.5, IF(2017) 2.169, citations 12. DOI: 10.1109/LMWC.2018.2808418

[12] A. Raffo, **V. Vadalà**, G. Bosi, F. Trevisan, G. Avolio, G. Vannini, "Waveform engineering: State-of-the-art and future trends (invited paper)", Int. Journal of RF and Microwave CAE, Wiley, Jan. 2017, vol. 27, pp. e21051. CS (2017) 1.17, IF(2016) 0.746, citations 8. DOI: 10.1002/mmce.21051

[13] **V. Vadalà**, A. Raffo, G. Avolio, M. Marchetti, D. M. M. P. Schreurs and G. Vannini, "A New Dynamic-Bias Measurement Setup for Nonlinear Transistor Model Identification," IEEE Trans. on Microwave Theory and Techniques, Jan. 2017, vol. 65, no. 1, pp. 218-228. CS (2017) 3.59, IF(2016) 2.897, citations 2. DOI: 10.1109/TMTT.2016.2628748

[14] G. Avolio, **V. Vadalà**, I. Angelov, A. Raffo, M. Marchetti, G. Vannini D. M. M.-P. Schreurs, "A procedure for the extraction of a nonlinear microwave GaN FET model", International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, Wiley, Jan. 2017, vol. 30, pp. e2151. CS (2017) 0.68, IF(2016) 0.622, citations 5. DOI: 10.1002/jnm.2151

[15] G. Crupi, **V. Vadalà**, P. Colantonio, E. Cipriani, A. Caddemi, G. Vannini, D. M.M.-P Schreurs, "Empowering GaN HEMT models: The gateway for power amplifier design (invited paper)", International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, Wiley, Jan. 2017, vol. 30, pp. e2125. CS (2017) 0.68, IF(2016) 0.622, citations 14. DOI: 10.1002/jnm.2125

[16] G. Avolio, A. Raffo, **V. Vadalà**, G. Vannini and D. M. M. P. Schreurs, "Dynamic-Bias S-Parameters: A New Measurement Technique for Microwave Transistors," IEEE Trans. on Microwave Theory and Techniques, Nov. 2016, vol. 64, no. 11, pp. 3946-3955. CS (2016) 3.39, IF(2016) 2.897, citations 6. DOI: 10.1109/TMTT.2016.2608344

[17] A. Raffo, G. Avolio, **V. Vadalà**, D.M.M.-P Schreurs, G. Vannini, "A Non-Quasi-Static FET Model Extraction Procedure Using the Dynamic-Bias Technique," IEEE Microwave and Wireless Components Letters, Dec. 2015, vol. 25, pp. 841-843. CS (2015) 2.32, IF(2015) 1.599, citations 3. DOI: 10.1109/LMWC.2015.2496794

[18] G. Avolio, A. Raffo, I. Angelov, **V. Vadalà**, G. Crupi, A. Caddemi, G. Vannini, D. M. M.-P. Schreurs, "Millimeter-wave FET Nonlinear Modelling Based on the Dynamic-Bias Measurement Technique," IEEE Trans. on Microwave Theory and Techniques, Nov. 2014, vol. 62, pp. 2526-2537. CS (2014) 3.37, IF(2014) 2.243, citations 20. DOI: 10.1109/TMTT.2014.2359852

[19] D. Resca, A. Raffo, S. Di Falco, F. Scappaviva, **V. Vadalà**, and G. Vannini, "X-band GaN MMIC HPA for SAR Systems Designed by Exploiting Low-Frequency Load-Line Measurements," IEEE Microwave and Wireless Components Letters, Apr. 2014, vol. 24, pp. 266-268. CS (2014) 2.56, IF(2014) 1.703, citations 30. DOI: 10.1109/LMWC.2014.2299552

[20] A. Raffo, G. Bosi, **V. Vadalà**, G. Vannini, "Behavioral Modeling of GaN FETs: a Load-Line Approach," IEEE Trans. on Microwave Theory and Techniques, Jan. 2014, vol. 62, pp. 73-82. CS (2014) 3.37, IF(2014) 2.243, citations 52. DOI: 10.1109/TMTT.2013.2291710

[21] G. Bosi, G. Crupi, **V. Vadalà**, A. Raffo, A. Giovannelli, G. Vannini, "Nonlinear Modeling of LDMOS Transistors for High-Power FM Transmitters," International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, Wiley, Sep. 2014, vol. 27, pp. 780-

791. CS (2014) 0.76, IF(2014) 0.615, citations 13. DOI: 10.1002/jnm.1939

[22] **V. Vadalà**, A. Raffo, S. Di Falco, G. Bosi, A. Nalli, G. Vannini, "A Load–Pull Characterization Technique Accounting for Harmonic Tuning," IEEE Trans. on Microwave Theory and Techniques, Jul. 2013, vol. 61, pp. 2695-2704. CS (2013) 3.64, IF(2013) 2.943, citations 39. DOI: 10.1109/TMTT.2013.2262803

[23] **V. Vadalà**, G. Avolio, A. Raffo, D. M. M.-P. Schreurs, G. Vannini, "Nonlinear Embedding and De-Embedding Techniques for Large-Signal FET Measurements," Microwave and Optical Technology Letters, Wiley, Dec. 2012, vol. 54, pp. 2835-2838. CS (2012) 0.83, IF(2012) 0.585, citations 11. DOI: 10.1002/mop.27169

[24] A. Raffo, **V. Vadalà**, P.A. Traverso, A. Santarelli, G. Vannini, F. Filicori, "A Dual-Source Nonlinear Measurement System Oriented to the Empirical Characterization of Low-Frequency Dispersion in Microwave Electron Devices," Computer Standards & Interfaces Journal, Elsevier, Feb. 2011, vol. 33, pp. 165-175. CS (2011) 2.48, IF(2011) 1.257, citations 2. DOI: 10.1016/j.csi.2010.06.008

[25] G. Crupi, A. Raffo, D. M. M.-P. Schreurs, G. Avolio, **V. Vadalà**, S. Di Falco, A. Caddemi, G. Vannini, "Accurate GaN HEMT Nonquasi-Static Large-Signal Model Including Dispersive Effects," Microwave and Optical Technology Letters, Wiley, Mar. 2011, vol. 53, pp. 692-697. CS (2011) 0.83, IF(2011) 0.618, citations 29. DOI: 10.1002/mop.25757

[26] A. Raffo, G. Avolio, D. M. M.-P. Schreurs, S. Di Falco, **V. Vadalà**, F. Scappaviva, G. Crupi, B. Nauwelaers, G. Vannini, "On the Evaluation of the High-Frequency Load Line in Active Devices," International Journal of Microwave and Wireless Technologies, Cambridge University Press, Feb. 2011, vol. 3, pp. 19-24. CS (2011) 0.62, IF(2012) 0.573, citations 11. DOI: 10.1017/S1759078710000838

[27] A. Raffo, S. Di Falco, **V. Vadalà**, G. Vannini, "Characterization of GaN HEMT Low-Frequency Dispersion Through a Multiharmonic Measurement System," IEEE Trans. on Microwave Theory and Techniques, Sep. 2010, vol. 58, pp. 2490-2496. CS (2011) 2.68, IF(2010) 2.025, citations 61. DOI: 10.1109/TMTT.2010.2058934

[28] A. Raffo, **V. Vadalà**, D. Schreurs, G. Crupi, G. Avolio, A. Caddemi, G. Vannini, "Nonlinear Dispersive Modeling of Electron Devices Oriented to GaN Power Amplifier Design," IEEE Trans. on Microwave Theory and Techniques, Apr. 2010, vol. 58, pp. 710-718. CS (2011) 2.68, IF(2010) 2.025, citations 88. DOI: 10.1109/TMTT.2010.2041572

International Conferences and Workshops

[29] **V. Vadalà**, A. Raffo, G. Bosi, A. Barsegyan, J. Custer, G. Formicone, J. Walker, G. Vannini "200-W GaN PA Design based on Accurate Multicell Transistor Modeling" accepted at IEEE MTT-S Int. Microwave Symp. Dig., 2022, Denver, Colorado.

[30] G. Bosi, **V. Vadalà,** R. Giofrè**,** A. Raffo, G. Vannini **"**Evaluation of Microwave Transistor Degradation Using Low-Frequency Time-Domain Measurements," 34th General Assembly and Scientific Symposium of the International Union of Radio Science, URSI GASS 2021, Rome, Italy. DOI: 10.23919/URSIGASS51995.2021.9560595.

[31] **V. Vadalà,** A. Raffo**,** G. Bosi, R. Giofrè, G. Vannini**, "**Advanced Measurement Techniques for Nonlinear Modelling of GaN HEMTs: From L-band to mm-Wave Applications" IEEE International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services (TELSIKS) – Invited - Dig., 2021, pp. 63 – 69, Nis, Serbia. DOI: 10.1109/TELSIKS52058.2021.9606326.

[32] **V. Vadalà**, A. Raffo, A. Colzani, M. A. Fumagalli, G. Sivverini, G. Bosi, G. Vannini, "Advanced Modelling Techniques Enabling E-Band Power Amplifier Design for 5G Backhauling," European Microwave Conference (EuMC), 2020, pp. 161-164, Utrecht, The Netherlands.

[33] G. Bosi, A. Raffo, R. Giofrè, **V. Vadalà,** G. Vannini, E. Limiti, "Empowering GaN-Si HEMT Nonlinear Modelling for Doherty Power Amplifier Design" European Microwave Conference (EuMC), 2020, pp. 249 – 252, Utrecht, The Netherlands. DOI: 10.1109/EuMIC48047.2021.00074

[34] **V. Vadalà** and G. Vannini, "Nonlinear Characterization of GaN Transistors under Dynamic Bias Operation," 34th General Assembly and Scientific Symposium (GASS) of the International Union of Radio Science (URSI) 2020, Rome, Italy.

[35] G. Bosi, A. Raffo, **V. Vadalà**, G. Vannini, G. Avolio, M. Marchetti, R. Giofrè, P. Colantonio, E. Limiti, "Load-Pull Measurements Oriented to Harmonically-Tuned Power Amplifier Design," 2020 International Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMiC), Cardiff, United Kingdom, 2020, pp. 1-3, doi: 10.1109/INMMiC46721.2020.9160151.

[36] **V. Vadalà**, A. Raffo, K. Kikuchi, H. Yamamoto, G. Bosi, K. Inoue, N. Ui, G. Vannini "GaN HEMT Model with Enhanced Accuracy under Back-off operation" accettato per la presentazione alla conferenza European Microwave Conference (EuMC), 2019, Paris, France.

[37] G. Avolio, A. Raffo, M. Marchetti, G. Bosi, **V. Vadalà**, G. Vannini, "GaN FET Load-Pull Data in Circuit Simulators: a Comparative Study" accettato per la presentazione alla conferenza European Microwave Conference (EuMC), 2019, Paris, France

[38] **V. Vadalà**, D. Schreurs, "New Measurement Techniques for Nonlinear Modelling of Microwave GaN FETs" **Invited talk** atl Workshop: "GaN HEMT Characterization and Modeling for micro- and mm-Wave Power Amplifier Applications," European Microwave Conference (EuMC), 2018, Madrid, Spain.

[39] H. Yamamoto, K. Kikuchi, N. Ui, K. Inoue, **V. Vadalà**, G. Bosi, A. Raffo, G. Vannini, "Analysis of Gate-Voltage Clipping Behavior on Class-F and Inverse Class-F Amplifiers," IEEE BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium, BCICTS 2018 Dig. 2018, San Diego, CA, pp 44-47.

[40] K. Kikuchi, H. Yamamoto, N. Ui, K. Inoue, **V. Vadalà**, G. Bosi, A. Raffo, G. Vannini, "Comparison of GaN HEMT Technolgy Processes by Large-Signal Low-Frequency Measurements," Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC) Dig. 2018, Brive la Gaillarde, France.

[41] G. Bosi, A. Raffo, **V. Vadalà**, F. Trevisan, G. Formicone, J. Burger, J. Custer, G. Vannini, "Evaluation of High-Voltage Transistor Reliability Under Nonlinear Dynamic Operation", European Microwave Integrated Circuits Conference (EuMIC), Dig. 2017, Norimberga, Germania.

[42] E. Cipriani, P. Colantonio, F. Giannini. A. Raffo, **V. Vadalà**. G. Bosi, G. Vannini, "Extended operation of class-F power amplifiers using input waveform engineering", European Microwave Integrated Circuits Conference (EuMIC), Dig. 2017, Norimberga, Germania.

[43] A. Petrocchi, G. Crupi, **V. Vadalà**, G. Avolio, A. Raffo, D. Schreurs, A. Caddemi, G. Vannini "Thermal Characterization of High-Power GaN HEMTs up to 65 GHz," IEEE International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services (TELSIKS), Dig., 2017, Nis, Serbia.

[44] F. Trevisan, A. Raffo, G. Bosi, **V. Vadalà**, G. Vannini, G. Formicone, J. Burger, J. Custer, "75-VDC GaN Technology Investigation from a Degradation Perspective," Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC) Dig., 2017, Gratz, Austria.

[45] **V. Vadalà**, A. Raffo, G. Bosi, G. Vannini, P. Colantonio, F. Giannini, "Fast Extraction of Accurate I/V Models for Harmonically-Tuned Power Amplifier Design", European Microwave Integrated Circuit Conference (EuMIC), Dig., 2016, London, UK, pp.285-288.

[46] G. Bosi, A. Raffo, **V. Vadalà**, F. Trevisan, G. Vannini, O. Cengiz, O. Sen, E. Ozbay, "Low-Frequency Time-Domain Characterization for Fast and Reliable Evaluation of Microwave Transistor Performance", European Microwave Integrated Circuit Conference (EuMIC), Dig., 2016, London, UK, pp.41-44.

[47] A. Raffo, G. Bosi, **V. Vadalà**, G. Vannini, "Nonlinear Modelling of GaN Transistors: Behavioural and Analytical Approaches," IEEE International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services (TELSIKS) – *Invited* - Dig.,2015, Nis, Serbia, pp. 83-89.

[48] A. Raffo, P. Colantonio, E. Cipriani, **V. Vadalà**, G. Bosi, T.M. Martin-Guerrero, G. Vannini, F. Giannini, "Theoretical Consideration on Harmonic Manipulated Amplifiers Based on Experimental Data," Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC) Dig., 2015, Taormina, Italy.

[49] E. Cipriani, P. Colantonio, F. Giannini, G. Bosi, A. Raffo, **V. Vadalà**, G. Vannini, "C-Band Power Amplifier Design Based on Low-Frequency Waveform Engineering," European

Microwave Integrated Circuit Conference (EuMIC), Dig., 2015, Paris, France, pp.325-328.

[50] G. Bosi, A. Raffo, **V. Vadalà**, G. Vannini, "A New Description of Fast Charge-Trapping Effects in GaN FETs," IEEE MTT-S Int. Microwave Symp. Dig., 2015, Phoenix, Arizona.

[51] **V. Vadalà**, A. Raffo, G. Avolio, M. Marchetti, D.M.M.-P. Schreurs, G. Vannini, "Extraction of Accurate GaN HEMT Model for High-Efficiency Power Amplifier Design," IEEE MTT-S Int. Microwave Symp. Dig., 2015, Phoenix, Arizona.

[52] **V. Vadalà**, A. Raffo, G. Vannini, G. Avolio, D. M. M.-P. Schreurs, "GaN HEMT Model Extraction Based on Dynamic-Bias Measurements", European Microwave Integrated Circuit Conference (EuMIC), Dig., 2014, Rome, Italy, pp.206-209.

[53] **V. Vadalà**, A. Raffo, P. Colantonio, E. Cipriani, F. Giannini, C. Lanzieri, A. Pantellini, A. Nalli, G. Bosi, G. Vannini, "Evaluation of FET Performance and Restrictions by Low-Frequency Measurements", Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC), Dig., 2014, Leuven, Belgium.

[54] G. Avolio, A. Raffo, I. Angelov, **V. Vadalà**, G. Crupi, A. Caddemi, G. Vannini, D. M. M.-P. Schreurs, "Nonlinear Model for 40-GHz Cold-FET Operation," Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC), Dig., 2014, Leuven, Belgium.

[55] G. Bosi, A. Raffo, A. Nalli, **V. Vadalà**, G. Vannini, "Characterization of Charge-Trapping Effects in GaN FETs Through Low-Frequency Measurements," Workshop on Integrated Nonlinear Microwave and Millimetre-wave Circuits (INMMiC), Dig., 2014, Leuven, Belgium.

[56] A. Raffo, **V. Vadalà**, G. Avolio, G. Bosi, A. Nalli, D. M.M.-P. Schreurs, G. Vannini, "Linear Versus Nonlinear De-Embedding: Experimental Investigation," IEEE 81st Automatic RF Techniques Group Microwave Measurements Conference Dig., 2013, Seattle, Washington.

[57] A. Nalli, A. Raffo, G. Avolio, **V. Vadalà**, G. Bosi, D. M.M.-P. Schreurs, G. Vannini, "Extremely Low-Frequency Measurements Using an Active Bias Tee," IEEE MTT-S Int. Microwave Symp. Dig., 2013, Seattle, Washington.

[58] G. Bosi, A. Raffo, G. Avolio, **V. Vadalà**, D. M.M.-P. Schreurs, G. Vannini, "Microwave FET Model Identification Based on Vector Intermodulation Measurements," IEEE MTT-S Int. Microwave Symp. Dig., 2013, Seattle, Washington.

[59] G. Bosi, A. Raffo, **V. Vadalà**, A. Nalli, G. Vannini, "Identification of the Optimum Operation for GaN HEMTs in High-Power Amplifiers," IEEE MTT-S International Microwave & Optoelectronics Conference Dig., 2013, Rio de Janeiro, Brazil.

[60] S. Di Falco, A. Raffo, D. Resca, F. Scappaviva, **V. Vadalà**, G. Vannini, "GaN Power Amplifier Design Exploiting Wideband Large-Signal Matching," Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMIC) Dig., 2012, Dublin, Ireland.

[61] **V. Vadalà**, G. Avolio, G. Bosi, A. Raffo, D. Schreurs, G. Vannini, "Influence of the Gate Current Dynamic Behaviour on GaAs HEMT Reliability Issues," European Microwave Integrated Circuits Conference (EuMiC) Dig., 2012, Amsterdam, pp. 258-261.

[62] S. Di Falco, A. Raffo, **V. Vadalà**, G. Vannini, "Power Amplifier Design Accounting for Input Large-Signal Matching," European Microwave Integrated Circuits Conference (EuMiC) Dig., 2012, Amsterdam, Netherlands, pp. 465-468.

[63] **V. Vadalà**, A. Raffo, G. Bosi, G. Crupi, G. Vannini, "Transistor Vector Load-Pull Characterization for Millimeter-Wave Power Amplifier Design," IEEE 79th Automatic RF Techniques Group Microwave Measurements Conference Dig., 2012, Montreal, Canada.

[64] A. Musio, **V. Vadalà**, F. Scappaviva, A. Raffo, S. Di Falco, G. Vannini, "A New Approach to Class-E Power Amplifier Design," Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMIC) Dig., 2011, Vienna, Austria.

[65] S. Di Falco, A. Raffo, G. Vannini, **V. Vadalà**, "Low-Frequency Waveform Engineering Technique for Class-F Microwave Power Amplifier Design," European Microwave Integrated Circuits Conference (EuMiC) Dig., 2011, Manchester, UK, pp. 288-291.

[66] **V. Vadalà**, A. Raffo, S. Di Falco, G. Vannini, "GaN HEMT Nonlinear Characterization for Wideband High-Power Amplifier Design," European Microwave Integrated Circuits

Conference (EuMiC) Dig., 2011, Manchester, UK, pp. 9-12.

[67] G. Crupi, A. Raffo, D. Schreurs, G. Avolio, **V. Vadalà**, S. Di Falco, A. Caddemi, G. Vannini, "GaN HEMT Large-Signal Model Accounting for Both Low-Frequency Dispersion and High-Frequency Non-Quasi-Static Effects," IEEE International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services (TELSIKS) Dig., 2011, Nis, Serbia, pp. 234-237.

[68] A. Raffo, **V. Vadalà**, S. Di Falco, F. Scappaviva, G. Vannini, "Hybrid Approach to Microwave Power Amplifier Design," Workshop on Integrated Nonlinear Microwave and Millimetre-Wave Circuits (INMMIC) Dig., 2010, Göteborg, pp. 33-36.

[69] G. Avolio, A. Raffo, D. Schreurs, **V. Vadalà**, S. Di Falco, W. de Raedt, B. Nauwelaers, G. Vannini, "Experimental Investigation of LF dispersion and IMD asymmetry within GaN based HEMT technology," Workshop on Integrated Non-linear Microwave and Millimetre-wave Circuits (INMMIC) Dig., 2010, Göteborg, Sweden, pp. 24-27.

[70] **V. Vadalà**, A. Raffo, S. Di Falco, G. Vannini, "A Low-Cost and Accurate Technique for the Prediction of Load-Pull Contours," IEEE MTT-S Int. Microwave Symp. Dig., 2010, Anaheim, California, pp. 1162-1165.

[71] A. Raffo, S. Di Falco, **V. Vadalà**, G. Vannini, "Characterization of Electron Device Breakdown Under Nonlinear Dynamic Operation," European Microwave Integrated Circuits Conference (EuMiC) Dig., 2010, Paris, France, pp. 130-133.

[72] A. Raffo, S. Di Falco, **V. Vadalà**, F. Scappaviva, G. Vannini, "Class-A Power Amplifier Design Technique Based on Electron Device Low-Frequency Characterization," European Microwave Integrated Circuits Conference (EuMiC) Dig., 2009, Rome, Italy, pp. 463-466.

[73] A. Raffo, **V. Vadalà**, P.A. Traverso, A. Santarelli, G. Vannini, F. Filicori, "An Innovative Two-Source Large-Signal Measurement System for the Characterization of Low-Frequency Dispersive Effects in FETs," 16th IMEKO TC4 Symposium Dig., 2008, Florence, Italy, pp. 72-77.

[74] A. Raffo, **V. Vadalà**, A. Santarelli, G. Vannini, "A New Empirical Model for the Characterization of Low-Frequency Dispersive Effects in FET Electron Devices Accounting for Thermal Influence on the Trapping State," IEEE MTT-S Int. Microwave Symp. Dig., Atlanta, Georgia, 2008, pp. 1421-1424.

Book Chapters

A. Raffo, **V. Vadalà**, G. Vannini, "Nonlinear Embedding and De-Embedding: Theory and Applications," Academic Press (Elsevier), "Microwave De-embedding: From Theory to Application," 2013, ISBN: 9780124017009.

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Milan, 16/2/2022

Valeria Vadalà