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| Date of the CVA |
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## Section A. PERSONAL DATA

|                                    |                         |                     |  |
|------------------------------------|-------------------------|---------------------|--|
| Name and Surname                   | Antonio Garcia Loureiro |                     |  |
| Researcher's identification number | Researcher ID           | L-2251-2014         |  |
|                                    | Scopus Author ID        | 6602354927          |  |
|                                    | ORCID                   | 0000-0003-0574-1513 |  |

\* Obligatorio

### A.1. Current professional situation

|                       |  |            |      |
|-----------------------|--|------------|------|
| Institution           | Universidad de Santiago de Compostela  |            |      |
| Dpt. / Centre         | Electrónica y Computación / Facultad de Física   |            |      |
| Address               | Departamento de Electrónica y Computación, Campus Universitario Sur, Santiago de Compostela, 15782, Santiago de Compostela |            |      |
| Professional category | Catedrático de Universidad   | Start date | 2021 |
| Keywords              | Electronics and electrical engineering; Solar cells  |            |      |

### A.2. Academic education (Degrees, institutions, dates)

| Bachelor/Master/PhD        | University                            | Year |
|----------------------------|---------------------------------------|------|
| Doctor en Ciencias Físicas | Universidad de Santiago de Compostela | 1999 |
| Licenciado en Física       | Universidad de Santiago de Compostela | 1994 |

### A.3. General quality indicators of scientific production

Sexenios de investigación, 4.

Sexenio de investigación: del 01/01/1995 al 31/12/2000

Sexenio de investigación: del 01/01/2001 al 31/12/2006

Sexenio de investigación: del 01/01/2007 al 31/12/2012

Sexenio de investigación: del 01/01/2013 al 31/12/2018

Número de tesis dirigidas en los últimos 10 años: 10

## Section B. SUMMARY OF THE CURRICULUM

### Section C. MOST RELEVANT MERITS (ordered by typology)

#### C.1. Publications

AC: Autor de correspondencia; (n<sup>o</sup> x / n<sup>o</sup> y): posición firma solicitante / total autores

- 1 Scientific paper.** Daniel Nagy; Gabriel Espiñeira; Guillermo Indalecio; Antonio J. Garcia Loureiro; Karol Kalna; Natalia Seoane. 2020. Benchmarking of FinFET, Nanosheet, and Nanowire FET Architectures for Future Technology Nodes IEEE Access. IEEE. 8-1, pp.53196-53202.
- 2 Scientific paper.** Celia Outes; Eduardo F. Fernandez; Natalia Seoane; Florencia Almonacid; Antonio J. Garcia-Loureiro. 2020. Numerical optimisation and recombination effects on the vertical-tunnel-junction (VTJ) GaAs solar cell up to 10,000 suns Solar Energy. Elsevier. 203, pp.136-144.

- 3 **Scientific paper.** Natalia Seoane; Daniel Nagy; Guillermo Indalecio; Gabriel Espiñeira; Karol Kalna; Antonio García-Loureiro. 2019. A Multi-Method Simulation Toolbox to Study Performance and Variability of Nanowire FETs Materials Special Issue "Nanowire Field-Effect Transistor (FET)". MPDI. pp.1-15.
- 4 **Scientific paper.** Daniel Nagy; Guillermo Indalecio; Antonio J. Garcia-Loureiro; Gabriel Espiñeira; MUHAMMAD A. ELMESSARY; Karol Kalna; Natalia Seoane. 2019. Drift-Diffusion Versus Monte Carlo Simulated ON -Current Variability in Nanowire FETs IEEE Access. IEEE. 7, pp.12790-12797.
- 5 **Scientific paper.** A. Ruiz; N. Seoane; S. Claramunt; A. García-Loureiro; M. Porti; M. Nafria. 2019. Combined nanoscale KPFM characterization and device simulation for the evaluation of the MOSFET variability related to metal gate workfunction fluctuations Microelectronic Engineering. Elsevier. 216, pp.1-4.
- 6 **Scientific paper.** Samar Dabbabi; Mehdi Souli; Tarek Ben Nasr; Antonio Garcia-Loureiro; Najoua Kamoun; ;. 2019. Vacuum annealing effect on physical properties and electrical circuit model of ZnO:Sn/SnO<sub>2</sub>:F bilayer structure VACUUM. Elsevier. 167-9, pp.416-420.
- 7 **Scientific paper.** G. Espiñeira; D. Nagy; G. Indalecio; A. J. García-Loureiro; K. Kalna; N. Seoane. 2019. Impact of Gate Edge Roughness Variability on FinFET and Gate-All-Around Nanowire FET IEEE Electron Device Letters. IEEE. 40-4, pp.510-513.
- 8 **Scientific paper.** A. Ruiz; N. Seoane; S. Claramunt; A. Garcia-Loureiro; M. Porti; C. Couso; J. Martin-Martinez; M Nafria. 2019. Workfunction fluctuations in polycrystalline TiN observed with KPFM and their impact on MOSFETs variability Applied Physics Letters. AIP. 114, pp.093502-1-093502-4.
- 9 **Scientific paper.** Eduardo F. Fernández; Natalia Seoane; Florencia Almonacid; Antonio J. García-Loureiro. 2019. Vertical-Tunnel-Junction (VTJ) Solar Cell for Ultra-High Light Concentrations (>2000 Suns) IEEE Electron Device Letters. IEEE. 40-1, pp.44-47.
- 10 **Scientific paper.** Samar Dabbabi; Tarek Ben Nasr; Ali Madouri; Antonella Cavanna; Antonio Garcia-Loureiro; Najoua Kamoun. 2019. Fabrication and Characterization of Sensitive Room Temperature NO<sub>2</sub> Gas Sensor Based on ZnSnO<sub>3</sub> Thin Film Phys. Status Solidi A. Wiley. 216, pp.1-6.
- 11 **Scientific paper.** Daniel Nagy; Manuel Aldegunde; Muhammad A Elmessary; Antonio J García-Loureiro; Natalia Seoane; Karol Kalna. 2018. Modelling of nanoscale multi-gate transistors affected by atomistic interface roughness Journal of Physics:Condensed Matter. 30, pp.144006-144017.
- 12 **Scientific paper.** Natalia Seoane; Guillermo Indalecio; Daniel Nagy; Karol Kalna; Antonio J. García-Loureiro. 2018. Impact of Cross-Sectional Shape on 10-nm Gate Length InGaAs FinFET Performance and Variability IEEE transactions on Electron Devices. 65, pp.4546-462.
- 13 **Scientific paper.** M. Fortes; A. Belfar; A.J. Garcia-Loureiro. 2018. Efficiency increase of a-Si:H solar cells with optimized front and back contact textures Optik. Elsevier. 158, pp.1131-1138.
- 14 **Scientific paper.** Daniel Nagy; Guillermo Indalecio; Antonio J. García-Loureiro; Muhammad A. Elmessary; Karol Kalna; Natalia Seoane. 2018. FinFET Versus Gate-All-Around Nanowire FET: Performance, Scaling, and Variability Journal of Electron Devices Society. 6, pp.332-340.
- 15 **Scientific paper.** Guillermo Indalecio; Antonio J. García-Loureiro; Muhammad A. Elmessary; Karol Kalna; Natalia Seoane. 2018. Spatial Sensitivity of Silicon GAA Nanowire FETs Under Line Edge Roughness Variations Journal of Electron Devices Society. IEEE. 6, pp.601-610.
- 16 **Scientific paper.** Daniel Nagy; Guillermo Indalecio; Antonio J. García-Loureiro; Muhammad A. Elmessary; Karol Kalna; Natalia Seoane. 2017. Metal Grain Granularity Study on a Gate-All-Around Nanowire FET IEEE transactions on Electron Devices. IEEE. 64-12, pp.5263-5269.
- 17 **Scientific paper.** M. Fortes; E. Comesaña; J.A. Rodriguez; P. Otero; A.J. Garcia-Loureiro. 2017. Collection length and optical path improvement in a-Si:H solar cells Optik. Elsevier. 140, pp.370-380.

- 18 **Scientific paper.** C. Couso; M. Porti; J. Martin-Martinez; A.J. Garcia-Loureiro; N. Seoane; M. Nafria. 2017. Local Defect Density in Polycrystalline High-k Dielectrics: CAFM-Based Evaluation Methodology and Impact on MOSFET Variability IEEE Electron Device Letters. IEEE. 38-5, pp.637-640.
- 19 **Scientific paper.** F. Gomez-Folgar; G. Indalecio; N. Seoane; T. F. Pena; A. J. Garcia-Loureiro. 2017. MPI-Performance-Aware-Reallocation: method to optimize the mapping of processes applied to a cloud infrastructure Computing. Springer. 100-2, pp.211-226.
- 20 **Scientific paper.** Guillermo Indalecio; Natalia Seoane; Karol Kalna; Antonio J. García-Loureiro. 2017. Fluctuation Sensitivity Map: A Novel Technique to Characterise and Predict Device Behaviour Under Metal Grain Work-Function Variability Effects IEEE transactions on Electron Devices. IEEE. 64-4, pp.1695-1701.
- 21 **Scientific paper.** N Seoane; M Aldegunde; D Nagy; M A Elmessary; G Indalecio; A J García-Loureiro; K Kalna. 2016. Simulation study of scaled In<sub>0.53</sub>Ga<sub>0.47</sub>As and Si FinFETs for sub-16 nm technology nodes Semiconductor Science and Technology. IOP. 31, pp.1-8.
- 22 **Scientific paper.** Guillermo Indalecio; Antonio J. García-Loureiro; Natalia Seoane Iglesias; Karol Kalna. 2016. Study of Metal-Gate Work-Function Variation Using Voronoi Cells: Comparison of Rayleigh and Gamma Distributions IEEE transactions on Electron Devices. IEEE. 63-6, pp.2625-2628.
- 23 **Scientific paper.** Muhammad A. Elmessary; Daniel Nagy; Manuel Aldegunde; Jari Lindberg; Wulf G. Dettmer; Djordje Perić; Antonio J. García-Loureiro; Karol Kalna. 2016. Anisotropic Quantum Corrections for 3-D Finite-Element Monte Carlo Simulations of Nanoscale Multigate Transistors IEEE transactions on Electron Devices. IEEE. 63-3, pp.933-939.
- 24 **Scientific paper.** Natalia Seoane; Guillermo Indalecio; Manuel Aldegunde; Daniel Nagy; Muhammad A. Elmessary; Antonio J. García-Loureiro; Karol Kalna. 2016. Comparison of Fin-Edge Roughness and Metal Grain Work Function Variability in InGaAs and Si FinFETs IEEE transactions on Electron Devices. IEEE. 63-3, pp.1209-1215.
- 25 **Scientific paper.** M. Fortes; A. Belfar; A.J Garcia-Loureiro. 2016. Two-dimensional simulation study of textured p-i-n a-Si:H solar cells with p-a-SiC:H and p-nc-Si:H window layers Optik. Elsevier. 127-3, pp.9464-9473.
- 26 **Scientific paper.** M. Fortes; E. Comesaña; J.A. Rodriguez; P. Otero; A.J. Garcia-Loureiro. 2016. Updated insight into the use of mc-Si:H n-layers in a-Si:H solar cells Thin Solid Films. Elsevier. 603-3, pp.283-288.
- 27 **Scientific paper.** Guillermo Indalecio; Fernando Gomez-Folgar; Antonio J. Garcia-Loureiro. 2016. GWMEP: Task-Manageras-a-Service in Apache CloudStack IEEE Internet Computing. IEEE. 20-3, pp.42-49.
- 28 **Scientific paper.** Eduardo F. Fernández; Florencia Almonacid; Antonio J. Garcia-Loureiro. 2015. Multi-junction solar cells electrical characterization by neuronal networks under different irradiance, spectrum and cell temperature Energy. Elsevier. 90, pp.846-856.
- 29 **Scientific paper.** Daniel Nagy; Muhammad A. Elmessary; Manuel Aldegunde; et al;. 2015. 3-D Finite Element Monte Carlo Simulations of Scaled Si SOI FinFET With Different Cross Sections IEEE Transactions on Nanotechnology. IEEE. 14-1, pp.93-100.
- 30 **Scientific paper.** G. Indalecio; N. Seoane; M. Aldegunde; K. Kalna; A. J. García-Loureiro. 2015. Variability characterisation of nanoscale Si and InGaAs fin field-effect-transistors at subthreshold Journal of Low Power Electronics. 11-2, pp.256-262.
- 31 **Scientific paper.** Eduardo F. Fernandez; P. Rodrigo; J.I. Fernandez; F. Almonacid; P. Perez-Higueras; A. Garcia-Loureiro; G. Almonacid. 2014. Analysis of high concentrator photovoltaic modules in outdoor conditions: Influence of direct normal irradiance, air temperature, and air mass Journal of Renewable and Sustainable Energy. 6, pp.013102-1-013102-10.
- 32 **Scientific paper.** Montse Fortes; E. Comesaña; J.A. Rodriguez; P Otero; Antonio Garcia Loureiro. 2014. Impact of series and shunt resistances in amorphous silicon thin film solar cells Solar Energy. 100, pp.114-123.

- 33 **Scientific paper.** G. Indalecio; M. Aldegunde; N. Seoane; K. Kalna; A J Garcia-Loureiro. 2014. Statistical study of the influence of LER and MGG in SOI MOSFET Semiconductor Science and Technology. IOP. 29-4, pp.045005-045012.
- 34 **Scientific paper.** Eduardo F Fernandez; Gerald Siefer; F. Almonacid; Antonio Garcia Loureiro; Pedro Perez Higuera. 2013. A two subcell equivalent solar cell model for III–V triple junction solar cells under spectrum and temperature variations Solar Energy. 92-6, pp.221-229.
- 35 **Book chapter.** Eduardo Fernandez Fernandez; Antonio J. Garcia Loureiro; Greg P. Smestad. 2015. Multijunction Concentrator Solar Cells: Analysis and Fundamentals High Concentrator Photovoltaics. Springer. pp.9-37. ISBN 9783319150383.
- 36 **Scientific edition.** Antonio Garcia-Loureiro; Karol Kalna; Natalia Seoane. 2020. Special Issue Nanowire Field-Effect Transistor (FET) Materials. MDPI. pp.1-98.

## C.2. Participation in R&D and Innovation projects

- 1 PID2019-104834G B-I00, Computación de altas prestaciones y Cloud para aplicaciones de alto interés Francisco Fernandez Rivera. (Universidad de Santiago de Compostela). 01/06/2020-31/05/2023. 190.938 €
- 2 PID2019-106497RB-I00, Ultra-Efficient micro-scale new generation hybrid concentrator photovoltaic systems Eduardo Fernandez Fernandez. (Plan Nacional). 01/06/2020-31/05/2023. 282.400 €
- 3 P18-RT-1595, NACe-CPV/TE (Nuevas Arquitecturas de Células de Concentración Fotovoltaica y TERmoeléctricos para el desarrollo de módulos híbridos de nueva generación) (Universidad de Jaén). 11/02/2020-10/02/2023. 122.986 €
- 4 EIN2020-112456, Sistema ultraeficiente para alimentación de sistemas remotos (Universidad de Santiago de Compostela). 01/11/2020-31/10/2022. 15.000 €
- 5 TIN2016-76373-P, Soluciones para nuevos desafíos en computacion de altas prestaciones (Universidad de Santiago de Compostela). 01/01/2017-31/12/2019. 161.000 €
- 6 Agrupacións estratéxicas 2016 - CITIUS (2016-PG014) Consellería de Cultura Educación e Ordenación Universitaria, Xunta de Galicia. (CITIUS). 01/01/2016-30/11/2019. 1.400.000 €
- 7 TEC2014-59402-JIN, Escalado y Variabilidad de Transistores Túnel de Efecto Campo 3D Basados en Nanohilos Usando Si, Ge y Materiales III-V Natalia Seoane Iglesias. (Universidad de Santiago de Compostela). 01/10/2015-30/09/2018. 170.000 €
- 8 TIN2013-41129-P, SOLUCIONES HARDWARE Y SOFTWARE PARA LA COMPUTACIÓN DE ALTAS PRESTACIONES (Universidad de Santiago de Compostela). 01/01/2014-31/12/2017. 152.000 €
- 9 TEC2010-17320, Development of modelling and simulation tools for advanced semiconductor devices: application to the study of intrinsic parameter fluctuations.(MOSITO-ASD) Ministerio de Ciencia e Innovación. Antonio García Loureiro. (Universidad de Santiago de Compostela). 01/01/2011-31/12/2013. 75.262 € Principal investigator.
- 10 FORMIGA CLOUD: Fomentando o reaproveitamento mediante integración e gridificación de aulas en CLOUD Dirección Xeral de Investigación e Desenvolvemento da Xunta de Galicia. Antonio Garcia Loureiro. (Universidad de Santiago de Compostela). 02/12/2009-31/10/2012. 51.175 €
- 11 Finite Element 3D Monte Carlo Device Simulator for Multigate Transistors The Royal Society International Joint Project-2009/R2. Antonio García Loureiro. (University of Glasgow). 01/03/2010-28/02/2012. 14.400 €

## C.3. Participation in R&D and Innovation contracts

- Mellora da eficiencia de módulos fotovoltaicos de capa fina de silicio T-Solar Global,S.A.. Antonio Jesús García Loureiro. From 15/12/2011. 47.520 €