

# CURRICULUM VITAE



## PERSONAL INFORMATIONS

Name	[MACHADO JUNIOR, GEORGE LUIZ]
Nationality	Brazilian
Birthdate	[ DECEMBER, 7 1977 ]

## ACADEMIC AND PROFESSIONAL FORMATION

2013 – 2018	<ul style="list-style-type: none"> <li>University of Minho, <b>doctoral program</b> in Materials Engineering, Braga Portugal.</li> <li>Thesis: “Microfabrication of graphene field effect transistors for biosensing applications”, supervised by Professor Pedro Alpuim with CNPQ grant.</li> <li><b>Research (Ph.D. Student)</b>, International Iberian Nanotechnology Laboratory – INL, Braga Portugal. Fabrication of graphene transistors by optical lithography. Study of the manual methods of graphene transferring. Deposition by PVD or CVD. Characterization of materials by Raman spectroscopy, electrical measurement, EDS, SEM, AFM.</li> </ul>
2008 – 2011	<ul style="list-style-type: none"> <li>University of Minho, <b>master degree in Advanced Materials in Physics</b>, Braga Portugal.</li> <li>Thesis: “Production of hydrogen polymorphous silicon of thin film of solar cell by hot wire – Chemical Vapour Deposition”, supervised by Professor Pedro Alpuim. Evaluation in 18.00</li> </ul>
2002 – 2007	<ul style="list-style-type: none"> <li>University of Minho, <b>degree in Physics</b>, Braga, Portugal. (13.00)</li> <li><b>Research in Biophysics and thin films</b>. Classification of 65,00%. The TCC was done for analysis of DNA coverage with cationic liposome and characterization by electrophoresis in agarose gel.</li> </ul>
1994 – 1996	<ul style="list-style-type: none"> <li>Professional High School, CIMS Centro Interescolar Miécimo da Silva, Rio de Janeiro, Brazil, course of <b>Building Technician, Project Designer, Work Control</b>. Classification 85,00%.</li> </ul>

## PROFESSIONAL EXPERIENCE

February 2018 – Present	<ul style="list-style-type: none"> <li><b>Research Engineer</b>, International Iberian Nanotechnology Laboratory. Carbon nanotubes growth process development, safety committee member for cleanroom laboratory, CVD process and maintenance, facility manager in the cleanroom.</li> </ul>
January–November 2017	<ul style="list-style-type: none"> <li><b>Research</b>, Federal University of Minas Gerais – UFMG and SEVA company, Belo Horizonte Brazil. Characterization of materials by Raman spectroscopy, electrical measurement.</li> <li>Cornell Nanoscale Science and Technology Facility CNF. Fabrication of graphene transistors by optical lithography. Study of the manual methods of graphene transferring. Deposition by PVD or CVD.</li> </ul>
August 2012 – December 2012	<ul style="list-style-type: none"> <li><b>Lecturer of higher education in the disciplines: Heat transfer 2, fluid mechanics 2, automation and hydraulics</b>, Institutos Superiores De Ensino Do Censa, ISECENSA, Campos dos Goytacazes, RJ, Brazil.</li> </ul>
August 2012 – April 2017	<ul style="list-style-type: none"> <li><b>Lecturer of mathematics, numerical calculation, electronics, electrical circuits, engineering</b>, Estácio de Sá University, Campos, RJ, Brazil</li> </ul>
October 2011 – March 2012	<ul style="list-style-type: none"> <li><b>Researcher – International Iberian Nanotechnology Laboratory (INL) – University of Minho – heterojunction solar cells, based on di–selenide</b></li> </ul>

<p>August 2010 – October 2011</p> <p>June 2010</p> <p>September 2008 – May 2010</p> <p>April 2010 – May 2010</p> <p>September 2008 – April 2010</p> <p>1997 – 2007</p>	<p><b>Copper and Indium, n-type CIS</b></p> <ul style="list-style-type: none"> <li>• Deposition system maintenance of the plasma and hot filament by CVD, programming with LABVIEW for conductivity characterization for the dark and photo conductivity.</li> <li>• <b>Teacher of hydraulic and pneumatic, physics, mathematics, electronics, electricity, digital, sensors, building electrical installations, metrology, instrumentation, hydraulic installations, industrial networking, final project</b> – Level Technical. SENAI, Macaé – RJ. Brazil</li> <li>• <b>Teacher of electricity</b>, AutoCad, Technical Level. TGA, Rio das Ostras – RJ. Brazil.</li> <li>• <b>Lecturer of physics</b>, seminar, computer science, computer science coordinator. Faetec – Instituto Superior de Tecnologia, Course of Horticulture, Campos – RJ. Brazil.</li> <li>• <b>Teacher of financial mathematics</b>, Cláudio Borba Preparatory for Caixa Economica Federal Bank. Centro, Campos – RJ. Brazil</li> <li>• <b>Lecturer of electronics, electricity, telecommunication, telephony, antennas, sensor and digital electronics. Laboratory of sensors</b>, Technical Level. Lagomar, Macaé – RJ. Brazil</li> <li>• Building designer by “<b>AutoCAD</b>”, Rio de Janeiro, Brazil.</li> </ul>
<p><b>CONFERENCES</b></p>	
	<ul style="list-style-type: none"> <li>• <b>Graphene</b> Genova, 19–22 April, 2016. <i>G. Machado Jr., R. Campos, J. Borme, P. Alpuim.</i></li> <li>• STUDY OF THE FUNCTIONALIZATION OF GRAPHENE SURFACES FOR BIOSENSING APPLICATIONS.</li> <li>• <b>NanoPT, Nano Portugal International Conference</b> INL, Braga, 16–19 February, 2016. <i>G. Machado Jr., S. Teixeira, N. Vieira, M. F. Cerqueira, J. Borme, P. Alpuim.</i></li> <li>• A COMPARISON OF GRAPHENE ELECTROCHEMICAL SENSORS AND ELECTROLYTE-GATED FIELD-EFFECT TRANSISTORS AS LABEL-FREE IMMUNOSENSORS.</li> <li>• <b>ICREA Workshop on Graphene Nanobiosensors.</b> Barcelona, 25–26 May, 2015. <i>George Machado Junior, Nirton Cristi Silva Vieira,, Jérôme Borme, Maria Fátima Cerqueira, Paulo Peixeiro Freitas, Pedro Alpuim.</i></li> <li>• PLANAR SOLUTION-GATED GRAPHENE FIELD-EFFECT TRANSISTORS FOR BIOSENSING.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>23rd European Photovoltaic Solar Energy Conference (PVSEC-23).</b> October 2008, Valencia, Spain. Oral Presentation: <i>P. Alpuim, G. M. Junior, S.A. Filonovich, P. Roca I Cabarrocas, J.-E. Bouree, E.V. Johnson, Y.M. Soro.</i> POLYMORPHOUS AND NANOCRYSTALLINE SILICON THIN-FILM SOLAR CELLS DEPOSITED AT 150°C ON PLASTIC SUBSTRATES.</li> <li>• <b>Boston2008.</b> September 2008, Boston, EUA. Oral presentation: <i>P. Alpuim, G.M. Junior, F. Almeida, S.A. Filonovich, J.E. Bourée.</i> FABRICATION OF THIN FILM AMORPHOUS SILICON SOLAR CELLS BY HWCVD ON FLEXIBLE SUBSTRATES.</li> <li>• <b>NanoSpain2008.</b> April 2008, Braga, Portugal. Oral Presentation: <i>Schwarz, R. Ayouchi, C. Casteleiro, G.M. Junior, M. Ribeiro, P. Alpuim.</i></li> </ul>

	<p>INTERFACE ANALYSIS TECHNIQUES ON NANOSCALE DIMENSION IN FLEXIBLE SOLAR CELLS.</p> <ul style="list-style-type: none"> <li>• <b>Conferences Physic Center.</b> July 2005, Braga, Portugal. Visual Presentation: <i>G. M. Junior, P. J. G. Coutinho, M. E. C. D. Real Oliveira.</i> Analysis of DNA package samples with cationic liposome DDAB, agarose gel electrophoresis technique and fluorescence spectroscopy with EtBr.</li> </ul>
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PUBLICATIONS	
	<ul style="list-style-type: none"> <li>• RECYCLING OF THE COPPER FOIL CATALYST AFTER GRAPHENE DEPOSITION <i>G. Machado Jr., M.F. Cerqueira, J. Borme, P. Alpuim</i> Submitted for publication</li> <li>• FUNCTIONALIZATION OF GRAPHENE SURFACES FOR ISCHEMIC STROKE BIOMARKER DETECTION <i>E Fernandes, P D Cabral, R Campos, G Machado Jr., M F Cerqueira, C Sousa, P P Freitas, J Borme and P Alpuim</i> Submitted for publication</li> <li>• ATTOMOLAR LABEL-FREE DETECTION OF DNA HYBRIDIZATION WITH ELECTROLYTE-GATED GRAPHENE FIELD-EFFECT TRANSISTORS <i>R. Campos, J. Borme, G. Machado Jr, M. F. Cerqueira and P. Alpuim</i> DOI: 10.1021/acssensors.8b00344</li> <li>• WAFER SCALE FABRICATION OF GRAPHENE MICROELECTRODE ARRAYS FOR THE DETECTION OF DNA HYBRIDIZATION <i>R. Campos, G. Machado Jr., M.F. Cerqueira, J. Borme, P. Alpuim</i> Microelectronic Engineering 189 (2018) 85–90 DOI: 10.1016/j.mee.2017.12.015</li> <li>• GRAPHENE FIELD-EFFECT TRANSISTOR ARRAY WITH INTEGRATED ELECTROLYTIC GATES SCALED TO 200 MM <i>N. C. S. Vieira, J. Borme, G. Machado Jr., F. Cerqueira, P. P. Freitas, V. Zucolotto, N. M. R. Peres, P. Alpuim</i> J. Phys.: Condens. Matter 28 085302 (2016) DOI: 10.1088/0953-8984/28/8/085302</li> <li>• LASER PATTERNING OF AMORPHOUS SILICON THIN FILMS DEPOSITED ON FLEXIBLE AND RIGID SUBSTRATES <i>Alpuim, P., Cerqueira, M.F., Iglesias, V., Machado, G., Borme, J.</i> Phys. Status Solidi A 213, No. 7, 1717–1727 (2016) DOI 10.1002/pssa.201532980</li> <li>• ELECTROCHEMICALLY GATED GRAPHENE FIELD-EFFECT TRANSISTOR FOR EXTRACELLULAR CELL SIGNAL RECORDING <i>Sanaz Asgarifar, Henrique L. Gomes, Ana Mestre, Pedro Inácio, J. Bragança, Jérôme Borme, George Machado, Fátima Cerqueira, Pedro Alpuim.</i> Technological Innovation for Cyber-Physical Systems Volume 470 of the series IFIP Advances in Information and Communication Technology pp 558–564 DOI: 10.1007/978-3-319-31165-4_53</li> <li>• INFLUENCE OF HYDROGEN PLASMA THERMAL TREATMENT ON THE PROPERTIES OF ZNO:AL THIN FILMS PREPARED BY DC MAGNETRON SPUTTERING. <i>M.V. Castro, M.F. Cerqueira, L. Rebouta, P. Alpuim, C.B. Garcia, G.L. Júnior, C.J. Tavares.</i></li> </ul>

	<p>DOI:10.1016/j.vacuum.2014.04.022, Vacuum Science Direct.</p> <ul style="list-style-type: none"> <li>• PIEZORESISTOR SENSOR FABRICATION BY DIRECT LASER WRITING ON HYDROGENATED AMORPHOUS SILICON <i>Alpuim, P, Cerqueira, M.F., Junior, G., Gaspar, J., Borme, J.</i> 2013 JSAP-MRS Joint Symposia; Kyoto; Japan; 16 September 2013 through 20 September 2013; Code 104460. DOI: 10.1557/opl.2014.296, EID: 2-s2.0-84898952915.</li> <li>• POLYMORPHOUS AND NANOCRYSTALLINE SILICON THIN-FILM SOLAR CELLS DEPOSITED AT 150°C ON PLASTIC SUBSTRATES. <i>P. Alpuim, G.M. Junior, S.A. Filonovich, P. Roca I Cabarrocas, J.-E. Bouree, E.V. Johnson, Y.M. Soro.</i> DOI: 10.4229/23rdEUPVSEC2008-3AV.2.34 EU PVSEC Proceedings</li> </ul>
<p><b>TECHNICAL APTITUDES AND COMPETENCES.</b></p>	<ul style="list-style-type: none"> <li>• 2010, <b>National Instruments</b>, Rio de Janeiro - Brazil <b>Labview</b> core 2 (40 h)</li> <li>• 1998, Winnercad, Rio de Janeiro, Brazil <b>AutoCad</b> Advanced 3D (80h)</li> <li>• 2007, <b>Cisco System</b>, Anysolution, Portugal (<i>international</i>) <b>CCNA 1, CCNA 2, Cisco Certified Network Associate</b> (120 h)</li> <li>• 2009, Qualification in Supersonic sound waves, level 2, Fraend, Rio de Janeiro, Brazil Ultra Sound N2-S2 measurement of thickness and continuity analysis (120h)</li> </ul>

**MOTHER TONGUE**

- **Portuguese.**

**OTHER LANGUAGES**

**[English, B1]**

[Written comprehension - good, Writing - good, speaking - good].

**[Italian, B1]**

[Written comprehension - good, Writing - good, speaking - good].