

1. Personal information



Name: Cristiana Filipa Almeida Alves

Date of birth: 23 of December of 1989

Place of birth: Guimarães, Portugal

Email: cristiana.alves@inl.int

Author name: C. F. Almeida Alves

Scopus Author ID: 55963972500

Orcid: <http://orcid.org/0000-0001-7898-5047>

2. Academic qualifications

- Researcher fellow
Marie Curie COFUND action (NanoTRAINforgrowth II)
International Iberian Nanotechnology Laboratory (INL)
July 2018 - Current
- Post-doctoral Researcher
Physics Department, University of Minho
March-May 2018
- PhD in Materials Engineering
School Engineering, University of Minho
Thesis dissertation: *“Development of bioactive surfaces for bone ingrowth on dental implants”*
2013-2018 (January)
- Integrated Master in Materials Engineering
School Engineering, University of Minho
Thesis dissertation: *“Desenvolvimento de revestimentos nanoestruturados para implantes osteointegrados”*
2008-2013
- High School
Martins Sarmiento, Guimarães
2005-2008

3. Professional career:

3.1. Active research areas

Development of multifunctional nanomaterials produced by physical vapor deposition methods (Magnetron Sputtering and HiPIMS) and anodization process with emphasis on synthesis and advance characterization, including:

- Phase composition by X-ray diffraction and transmission electron microscopy.
- Chemical composition by XPS and EDS.

- Morphological characterization by scanning and transmission electron microscopy.
- Electrochemical properties by potentiodynamic curves and EIS.

4. Scientific performance

Cristiana Alves has published 8 papers in international journals in the last 6 years, with approximately 61 cites in total, which translate in an h-index of 4.

(https://scholar.google.pt/citations?user=lf-9j_sAAAAJ&hl=pt-PT)

4.1. Patent Applications

- **International Patent Application PCT/IB2015/057171 (17/09/2015), “Implante dentário”; Priority: PT 107890 (17/09/2014).**

Applicant: University of Minho

Inventors: Sandra Maria Fernandes Carvalho

Cristiana Filipa Almeida Alves

4.2. Published papers in peer-reviewed journals

N.	Paper	Journal	Year	Q	I
8	C. F. Almeida Alves , C. Mansilla, L. Pereira, F. Paumier, Th. Gierardeau and S. Carvalho; “Influence of magnetron sputtering conditions on the chemical bonding, structural, morphological and optical behavior of Ta _{1-x} O _x coatings” https://doi.org/10.1016/j.surfcoat.2017.11.001	Surface and Coatings Technology	2018	Q1	2.59
7	S. Rodrigues, C. F. Almeida Alves , A. Cavaleiro and S. Carvalho; “Water and oil wettability of anodized 6016 aluminum alloy surface” https://doi.org/10.1016/j.apsusc.2017.05.204	Applied Surface Science	2017	Q1	3.39
6	C. F. Almeida Alves , S. Calderon V, D. Dias and S. Carvalho; “Influence of oxygen content on the electrochemical behavior of Ta _{1-x} O _x coatings” doi:10.1016/j.electacta.2016.05.188	Electrochimica Acta	2016	Q1	4.80
5	C. F. Almeida Alves , A. Cavaleiro and S. Carvalho; “Bioactivity response of Ta _{1-x} O _x coatings deposited by reactive magnetron sputtering” doi:10.1016/j.msec.2015.08.017	Materials Science and Engineering C: Materials for Biological Applications	2016	Q2	4.16
4	N.K. Manninen, S. Calderón V, C. F. Almeida Alves , S. Carvalho and A. Cavaleiro; “Influence of hydrogen incorporation and coating thickness on the corrosion resistance of carbon based coatings deposited by magnetron sputtering” doi:10.1016/j.surfcoat.2015.05.029	Surface and Coatings Technology	2015	Q1	2.59
3	C. F. Almeida Alves , F. Oliveira, I. Carvalho, A. P. Piedade and S. Carvalho; “Influence of	Materials Science and	2014	Q2	4.16

	albumin on the tribological behaviour of Ag-Ti (C, N) thin films for orthopedic implants” https://doi.org/10.1016/j.msec.2013.09.031	Engineering C: Materials for Biological Applications			
2	S. Calderon V., V. Lopes, C. F. Almeida Alves , A. Cavaleiro and S. Carvalho; "Structural and electrochemical characterization of Zr-C-N-Ag coatings deposited by DC dual magnetron sputtering" doi:10.1016/j.corsci.2013.11.036	Corrosion Science	2014	Q1	5.25
1	I. Carvalho, M. Henriques, J.C. Oliveira, C. F. Almeida Alves , A.P. Piedade and S. Carvalho; "Influence of surface features on the adhesion of Staphylococcus epidermidis to Ag-TiCN thin films" http://dx.doi.org/10.1088/1468-6996/14/3/035009	Science and Technology of Advanced Materials	2013	Q1	3.51

4.3. [Papers in submission process](#)

- **C. F. Almeida Alves**, L. S. Marques, S. Calderon V., P. J. Ferreira, D. Shneider, A. Cavaleiro and S. Carvalho "A detailed insight on the relationship between the crystal structure and the elastic properties of Ta_{1-x}O_x coatings".
- S. Calderon V, **C. F. Almeida Alves**, A. Cavaleiro, S. Carvalho; "Electrochemical corrosion properties of nano-structured coatings produced by magnetron sputtering".

4.4. [Participation in scientific meetings](#)

4.4.1. [Oral presentation in scientific meetings](#)

Year 2017 (1)

- **C. F. Almeida Alves**, C. Mansilla, S. Calderon V., L. Pereira, L. Marques, A. Cavaleiro and S. Carvalho; "Nanostructured surfaces based on tantalum oxide for osseointegrated metallic implants", ICMCTF 2017 – 44th International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, USA, April 2017

Year 2016 (1)

- **C. F. Almeida Alves**, J. Oliveira, S. Pires, A. Cavaleiro and S. Carvalho; "Growth of highly ordered anodic tantalum oxide nanostructures: control from nanopore to nanotube arrays", FEMS Junior Euromat 2016, Lausanne, Switzerland, July 2016

Year 2015 (1)

- **C. F. Almeida Alves** and S. Carvalho; "Bioactive response of Tantalum based surfaces", 6th Iberian Meeting on Colloids and Interfaces – RICI 6, Guimarães, Portugal, July 2015

4.4.2. [Poster presentation in scientific meetings](#)

Year 2017 (1)

- **C.F. Almeida Alves, J.** Oliveira, S. Pires, S. Calderón V., P. J. Ferreira, S. Carvalho, Growth of highly ordered anodic tantalum oxide nanostructures, MNE 2017: 43rd

International Conference on Micro and Nanoengineering, Braga, Portugal, September 2017

Year 2016 (1)

- **C. F. Almeida Alves**, S. Calderon, D. Dias, A. Cavaleiro and S. Carvalho; “Influence of oxygen content on the electrochemical behavior of Ta_{1-x}O_x coatings”, PSE2016 – 15th International Conference on Plasma Surface Engineering, Garmisch-Partenkirchen, Germany, September 2016

Year 2014 (1)

- **C. F. Almeida Alves**, A. Cavaleiro and S. Carvalho; “Effect of the oxygen content on the bioactivity of Ta-based coatings”, PSE2014 – 14th International Conference on Plasma Surface Engineering, Garmisch-Partenkirchen, Germany, September 2014

Year 2013 (1)

- **C. F. Almeida Alves**, M. Evaristo, A. Cavaleiro and S. Carvalho; “Influence of Oxygen content on the structural, mechanical and electrical properties of Tantalum oxide thin films”, Materiais 2013, Coimbra, Portugal, March 2013

4.4.3. Co-author in scientific meetings

- **C. F. Almeida Alves**, A. Cavaleiro, M. V. Oliveira and S. Carvalho; “Development of tantalum and tantalum oxide bioactive coatings”, XXXVI CBRAVIC I WTMS, Vitória, ES, September 05-09, 2015 (Poster)
- **C. F. Almeida Alves**, A. Cavaleiro and S. Carvalho; "Surface modification by two-step anodization of TaOx thin film", EUROMAT 2013 – European Congress and Exhibition on Advanced Materials and Processes, Seville, Spain (Oral)
- I. Carvalho, N. Manninen, R. Escobar Galindo, C. Palácio, I. Ferreri, **C.F. Almeida Alves** and S. Carvalho; "Bioactive coatings for medical industries", 9th Asian-European International Conference on Plasma Surface Engineering (AEPSE 2013), Jeju Island, Korea (Oral)
- **C. F. Almeida Alves**, A. Cavaleiro and S. Carvalho; "Porous Tantalum structures for bone ingrowth on dental implant", XXII International Materials Research Congress 2013 - IMRC, Cancun, Mexico (Oral)
- I. Carvalho, R. Escobar Galindo, **C.F. Almeida Alves**, M. Henriques, A. Cavaleiro and S. Carvalho; "Biomedical coatings for medical industries", Materiais 2013, Coimbra, Portugal (Oral)
- I. Carvalho, R. Escobar Galindo, **C.F. Almeida Alves**, M. Henriques, A. Cavaleiro and S. Carvalho; "Multifunctional coatings for biomedical applications: challenges and problems", PSE2012 – 13th International Conference on Plasma Surface Engineering, Garmisch-Partenkirchen, Germany (Oral)
- F. Oliveira, **C. F. Almeida Alves**, E. Carneiro, I. Carvalho, A. P. Piedade and S. Carvalho; “Influence of albumin on the tribological behaviour of Ag-Ti (C, N) thin films for orthopedic implants”, PSE 2012 – 13th International Conference on Plasma Surface Engineering, Garmisch-Partenkirchen, Germany (Poster)

4.5. Scientific Internships

- **Transmission electron microscopy: TEM, STEM and FIB to characterize tantalum oxide based nanomaterials produced by magnetron sputtering or anodization.**
Supervisor: Professor Doctor Paulo J. Ferreira

INL, Braga – Portugal

July 2016 – present

- **Optical characterization through spectroscopic ellipsometry of tantalum oxide coatings produced by magnetron sputtering.**
Supervisor: Professor Doctor Luis Pereira
CENIMAT/I3N, University of New Lisbon (UNL) - Portugal
December 2016
- **Production and characterization (XRD) of tantalum coatings deposited by HiPIMS.**
Supervisor: Doctor João Carlos Oliveira
University of Coimbra, Coimbra – Portugal
May 2015
- **FTIR and XRD (in-situ) characterization of tantalum oxide coatings produced by magnetron sputtering.**
Supervisor: Professor Doctor Thierry Girardeau and Doctor Fabien Paumier
Institut P² – University of Poitiers - France
October 2014

4.6. Scientific and society community recognition

4.6.1. Awards and scholarships

- **2017 Bolsas Papers @USA**, fellowship supporting travel expenses in recognition of the promising communication accepted for oral presentation in USA.
- **2013 PhD Scholarship**, Materials Engineering, Portuguese Foundation for Science and Technology (SFRH/BD/98199/2013).
- **2013 Best graduate student award** “Ordem dos Engenheiros 2013” (awarded in the framework “Dia Mundial dos Materiais 2013”), Master in Materials Engineering

4.6.2. Participation in organizing committees of Scientific events

- **Nanotechnology in Portugal: Science, Business, Society**, INL – 13 December 2017, Organizing volunteer.
- **MNE 2017**: 43rd International Conference on Micro and Nanoengineering, INL, Portugal – 18-22 September 2017; Organizing volunteer.
- **Open House at INL**, INL, Portugal – 24-25 September 2017; Organizing volunteer.
- **“Dia Mundial dos Materiais 2016”**, University of Minho – 2 November 2016, Member of the organizing committee.
- **1st UMinho PhD Engineering Winter Symposium**, University of Minho – 14 February 2014, Member of the organizing committee.

4.7. Coordination and participation in scientific projects

4.7.1. Project participation as a part of the research team

- Fundação para a Ciência e Tecnologia, PTDC/CTM-NAN/4242/2014 - Bimetallic clusters for controlled antimicrobial activity on stents, 175.000,00 €
- The effect on Human Health of Ag-TiO₂ Treated leathers for Footwear Industry - NANO_SAFE_LEATHER - SIINN JTC 2013 – 182.000,00 €

- PROGRAMA DE AÇÕES UNIVERSITÁRIAS INTEGRADAS LUSO-FRANCESAS – PAULF - 2014 – “Development of bioactive surfaces for bone ingrowth on dental implant”- 3.000 €
- Implantes dentários inteligentes – SMARTDENT, Projeto Vale Inovação n.º 2012/24005 - 57.893.50€
- Fundação para a Ciência e Tecnologia – PTDC/CTM/102853/2008, Desenvolvimento de revestimentos multifuncionais com propriedades antimicrobianas para implantes ortopédicos, 119.500,00 €

4.7.2. Participation in project proposals

- FCT - 02/SAICT/2017 - C492619138-00087809 - Design of new antimicrobial osseointegrated dental implants – **approved** (238.465,50 €).
- PROGRAMA DE AÇÕES UNIVERSITÁRIAS INTEGRADAS LUSO-FRANCESAS – PAULF - 2014 – “Development of bioactive surfaces for bone ingrowth on dental implant”- **Approved** (3.000 €)

5. Technical skills

5.1. Characterization techniques: Independent user

	Equipment	Model	Brand	Technique	Since
6	TEM	Probe-Corrected Titan - ChemiSTEM	FEI	Corrected-STEM, EDS-mapping, TEM and SAED	2017
5	AFM	Dimension Icon System	Bruker	Topography	2017
4	TEM	JEOL 2100	JEOL	TEM, STEM, EDS, SAED and D-STEM	2016
3	FIB	Helios NanoLab 450S DualBeam	FEI	Lamella preparation	2016
2	SEM	Nova 200 with EDAX - Pegasus X4M	FEI	SEM, EDS	2015
1	XRD	D8	Bruker	Crystallographic characterization	2014

5.2. Theoretical courses

- **Electron microscopy course: Theoretical course**
Professor Doctor Paulo J. Ferreira
INL, Braga – Portugal
2017

6. Teaching skills

6.1. Co-supervision activities to students: Master

Type	Student	Dissertation title	Course	University	Year
Co-supervisor	Sara Pires	Incorporação de Ca, P e Mg em óxido de Ta nanoestruturado:	Materials Engineering	University of Minho	2017

		caracterização de biocompatibilidade e citotoxicidade			
Co-supervisor	Tiago Oliveira	Nanoestruturação de Tântalo para aumento da osteointegração em implantes dentários	Materials Engineering	University of Minho	2016

6.2. Co-supervision activities to students: Graduate

Type	Student	Dissertation title	Course	University	Year
Co-supervisor	Sara Pires	Incorporação de Ca, P e Mg em óxido de Ta nanoestruturado para acelerar a osteointegração em implantes dentários	Materials Engineering	University of Minho	2016
Co-supervisor	Joana Oliveira	Incorporação de nanopartículas como agente antimicrobiano em superfícies nanoestruturadas para implantes osteointegrados	Materials Engineering	University of Minho	2016
Co-supervisor	Vítor Fernandes	Deposição de revestimentos bioativos à base de Ta para aplicações biomédicas	Materials Engineering	University of Minho	2014
Co-supervisor	Luisa Lima	Otimização do processo de anodização em revestimentos para implantes dentários	Materials Engineering	University of Minho	2014
Tutor	Duarte Dias	Desenvolvimento de revestimentos para implantes dentários	Materials Engineering	University of Minho	2013



6.3. Invited lectures in academic courses

- **Modificação de superfícies por anodização (Surface modification by anodization)**
Ciência e Tecnologia de Filmes Finos
Integrated Master Materials Engineering
University of Minho
March 2016
- **Cataforese (Cataphoresis)**
Ciência e Tecnologia de Filmes Finos
Integrated Master Materials Engineering
University of Minho
March 2016
- **Modificação de superfícies por anodização (Surface modification by anodization)**
Ciência e Tecnologia de Filmes Finos
Integrated Master Materials Engineering
University of Minho
March 2015

7. Languages

- Native language



	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
	B2	B2	C1	B2	B2
	B2	B2	B1	B1	A2

July 2018

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