

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae **cannot exceed 4 pages**. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	ELENA		
Family name	GORDO ODERIZ		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)	http://orcid.org/0000-0002-2869-1363		

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	26-01-2018		
Institution	UNIVERSIDAD CARLOS III DE MADRID		
Department/Center	CIENCIA E INGENIERÍA DE MATERIALES E ING. QUÍMICA	EPS	
Country	SPAIN	Teleph. number	
Keywords	Powder Metallurgy, Titanium, hard materials, sintering, design metallic alloys, coatings, wear, oxidation, additive manufacturing		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
6/11/2003-25/01/2018	Profesor Titular de Univ (Associate Professor) UC3M (Spain)
1/3/2000-6/11/2003	Profesor ayudante doctor (assistant profesor) UC3M (Spain)
1/10/1999-31/1/2000	Researcher - L&S Metall Co/Univ of Nottingham (UK)
1/8/99-31/8/99	Post-doc researcher – British Steel (UK) – MEC
1/1/99-31/7/99	Researcher – UC3M (Spain)
1/8/98-31/12/98	Post-doc researcher – CENIM (CSIC) Spain
1/1/94-31/12/97	Pre-doc researcher – CENIM (CSIC) Spain
1/1/98-31/7/98	

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Mining Engineer	Technical University of Madrid (UPM)	1994
PhD in Mining Engineering	Technical University of Madrid (UPM)	1998

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Prof. Elena Gordo is Mining Engineer and PhD in Materials Engineering by the Technical University of Madrid, Spain. She did postdoctoral research at the University of Nottingham (UK) and the University of Cambridge (UK) sponsored by London and Scandinavian Metallurgical, Co. and the Spanish Ministry of Education. With 30 years of experience in the field of Materials Science and Engineering she is currently Full Professor at the University Carlos of Madrid and co-responsible for the Group of Powder Technology (GTP). The research areas of Prof Gordo are related to the design and processing of metals and alloys by powder metallurgy as well as inorganic composites (ceramic-metal, metal-ceramic) and surface treatments. Under her leadership, the GTP was a pioneer in Europe in the development of Ti alloys by powder metallurgy, area where she has supervised four doctoral theses, a postdoc (IF-MSCA H2020, project PERMEABLE), and several R&D projects. Among the metal-ceramic composites, she works in the field of alternative and sustainable compositions for hardmetals to overcome economic and health issues related to the use of WC-Co. The GTP is recognized by the European Powder Metallurgy Association (EPMA) as the Centre of Excellence in the field of hardmetals due to the contributions in this area. According to Scopus, she is author of



205 scientific documents (121 articles in journals, 90 open access, 70% in Q1), with 3500 citations and h-index 36. She has participated in 41 R&D projects, being principal researcher of 18, and 35 research contracts with industry, being principal researcher of 15 of them. She has supervised 14 PhD students (4 more under development), more than 60 bachelor's and master's degree thesis, and was supervisor of several post-doc researchers under different funding programs such as "Juan de la Cierva", industrial contracts, China Scholarship Council, IF-MSCA H2020. She has occupied academic management positions as Head of Department of Materials Science and Engineering of UC3M, or Deputy Manager of Materials Funding Programme of the National Plan for Science of the Spanish Government. She has been guest editor for three high impact journals (Int. J. Ref Metals and Hard Mat; Adv Eng. Mat, Metals), and editor of the Powder Metallurgy Section of Encyclopedia of Materials: Metals and Alloys, Elsevier. She is part of the editorial board of the journals Metals and Powders (MPDI). She has been a member of the Technical or Scientific Committee of over 40 conferences, including the European Conferences in PM from 2008 up to 2025, some World conferences in PM, and American conferences in PM, and has been co-chair of the International Conference in PM and AM Titanium 2024 (PMTi2024). She participates in the teaching of several engineering degrees and master degrees, in subjects related to Materials Science and Engineering, Materials Processing and Powder Technologies. She maintains active collaborations with national and international groups, and enjoyed research stays at University of Cambridge, UK (2005) and University of Queensland, Australia (2018), funded by the Spanish Ministry of Education. She has been Co-chair of the European Powder Metallurgy Institute from 2019 to 2023, and has been granted the EPMA Fellowship Award 2020. She counts on 5 positive evaluations of research ("Sexenios"), 1 positive transfer evaluation ("Sexenio de transferencia") and 6 positive teaching evaluations ("quinquenios").

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. C. Romero, D. Benedetto, **E. Gordo**, Processing and surface modification of titanium open cell porous structures for PEM fuel cell bipolar plates. Int. J. of Hydrogen Energy, 2024, 52, pp. 1190–1201. <https://doi.org/10.1016/j.ijhydene.2023.06.287>.
2. P. Rodríguez-González, E.M. Ruiz-Navas, **E. Gordo**, Wire Arc Additive Manufacturing (WAAM) for Aluminum-Lithium Alloys: A Review. Materials (2023) 16, 4, 1375. <https://doi.org/10.3390/ma16041375>.
3. M. de Nicolás-Morillas, L. Llanes, **E. Gordo**. High-temperature wettability in hard materials: comparison of binder/carbide phases and evaluation of C addition. Int. J. Refr Met and Hard Mat (2023), 111, 106081. <https://doi.org/10.1016/j.ijrmhm.2022.106081>
4. I. Çaha, A.C. Alves, C. Chirico, A.M.P Pinto, S. Tsipas, **E. Gordo**, O. Bondarchuk, F.L. Deepak, F. Toptan. Atomic-Scale Investigations of Passive Film Formation on Ti–Nb alloys. App Surf Sci (2023), 615, 156282. <https://doi.org/10.1016/j.apsusc.2022.156282>
5. M. de Nicolás, L. Pereira, M. Penoy, C. Bertalan, R. Useldinger, L. Llanes, **E. Gordo**, Phase diagrams in alternative hard materials: Validation of thermodynamic simulation through high temperature x-ray diffraction, differential thermal analysis and microstructural characterization. Int. J. of Refractory Metals and Hard Materials (2021), 97, 105513. <https://doi.org/10.1016/j.ijrmhm.2021.105513>
6. M. de Nicolás, H. Besharatloo, P. Alvaredo, J.J. Roa, L. Llanes, **E. Gordo**, Design of alternative binders for hard materials. Int. J. of Refractory Metals and Hard Materials (2020), 87, 105089. <https://doi.org/10.1016/j.ijrmhm.2019.105089>
7. P. Alvaredo, M. Dios, B. Ferrari, **E. Gordo**, Understanding of wetting and solubility behavior of Fe binder on Ti(C,N) cermets. Journal of Alloys and Compounds (2019) 770, 5, 17-25. <https://doi.org/10.1016/j.jallcom.2018.07.243>
8. J. Ureña, S. Tsipas, A.M. Pinto, F. Toptan, **E. Gordo**, A. Jiménez-Morales, Corrosion and tribocorrosion behaviour of β -type Ti-Nb and Ti-Mo surfaces designed by diffusion treatments for biomedical applications. Corrosion Science (2018) Volume 140, Pages 51-60. <https://doi.org/10.1016/j.corsci.2018.06.024>



9. L. Bolzoni, E.M. Ruiz-Navas, E. Gordo, Evaluation of the mechanical properties of powder metallurgy Ti-6Al-7Nb alloy. *Journal of the Mechanical Behavior of Biomedical Materials*, 67 (2017) 110-116. <http://dx.doi.org/10.1016/j.jmbbm.2016.12.005>
10. L. Bolzoni, E.M. Ruiz-Navas, **E. Gordo**, Understanding the properties of low-cost iron-containing powder metallurgy titanium alloys. *Materials and Design* 110 (2016) 317-323. <http://dx.doi.org/10.1016/j.matdes.2016.08.010>

C.2. Congresses

Over 170 contributions to international conferences.

1. C. Kukla, E. Gordo, S. Schuschnigg, J. Villemur, P. Luna, C. Holzer. Interaction of Binder and Powder in Processing of Titanium. Oral. 7th International Conference on Powder Metallurgy and Additive Manufacturing of Titanium, PMTi2024. Madrid, 4-6 sept 2024.
2. A. García de la Camacha; E. Tabares; A. Jiménez-Morales; S. Schuschnigg; C. Kukla; S. Cano; E. Gordo. Validation Of Alternative Binders for Pellet Extrusion 3D Printing Of 316L Steels. Oral. EuroPM2023, Lisboa, Portugal, 1-4 octubre 2023.
3. E. Gordo, Overview of research activities in hard materials in EU. **Keynote** lecture. WorldPM2022, European Hard Materials Sectoral Group (EuroHM) meeting. Lyon, 09-13 octubre 2022.
4. C. Romero, E. Gordo. Opportunities of PM Titanium in the H2 Technologies: the case of Bipolar Plates and Porous Transport Layers. Oral. PMTi2022, Powder Metallurgy and Additive Manufacturing of Titanium. Montreal, Canadá, 29-31 agosto 2022
5. E. Gordo, M. de Nicolás, L. Llanes. Towards Co-free hard materials: a designing methodology and case study. Oral, 20th Plansee Seminar. Reutte, Austria, 30 mayo – 3 junio 2022
6. P. Rodríguez, E. Gordo, E.M. Ruiz-Navas. Chemical composition and mechanical properties of wires obtained by powder extrusion for additive manufacturing. Oral. EuroPM2020. Virtual conference, 5-7 octubre 2020.
7. C. Chirico, S. Tsiapas, F. Toptan, E. Gordo. Development Of Ti-Nb and Ti-Nb-Fe beta alloys from TiH₂ powders. **Oral, keynote**. EuroPM2018 Congress & Exhibition. Bilbao, España, 14-18 octubre 2018.
8. J. Ureña, E. Tejado, J.Y. Pastor, F. Velasco, S. Tsiapas, A. Jiménez-Morales, E. Gordo. Role of beta-stabilizer elements in microstructure and mechanical properties evolution of PM modified Ti surfaces designed for biomedical applications. **Keynote**. EuroPM2017 Congress & Exhibition. Milan, Italia, 1-5 octubre 2017.
9. E. Gordo. Production of Ti and Ti alloys by pressing and sintering. The low-cost approach. Oral – **Keynote**. PM Titanium 2015. 3rd conference on Powder Processing, Consolidation and Metallurgy of Titanium. Luneburg, Germany, 30 August – 3 Sept 2015

C.3. Research projects

1. PROJECT: Compuestos cerámica-metal y aleaciones refractarias de W para su aplicación bajo condiciones de servicio severas: diseño microestructural y nuevas rutas de procesamiento (ING4MATER) (Ref. MAT2015-70780-C4-2-P). Funded by Ministerio de Economía y Competitividad, Spain. Participants: Universidad Carlos III de Madrid, ICV (CSIC), UPC, UPM. Dates: 01/01/2016 - 31/12/2020. **PI: Elena Gordo**. Amount funded 142.296 €
2. PROJECT: Desarrollo de superficies híbridas biofuncionalizadas y resistentes a Tribocorrosion sobre nuevas aleaciones de Ti (BIOHYB) (Ref. PCIN-2016-123). Funded by Ministerio de Economía y Competitividad. SUBPROGRAMA: Actuaciones de Programación Conjunta Internacional. M-ERA-NET 2015. Dates 01/12/2016 - HASTA: 30/12/2019. **PI Elena Gordo**. Amount funded 90000 €



3. PROJECT: Additive Manufacturing: from material to application (ADITIMAT-CM). Ref. P2018/NMT4411. Funded by Consejería de Educación de la CAM. Participants: URJC (coordinator), UC3M, UCM, UPM, ICV-CSIC. Dates 01/01/2019 - 01/04/2023. **PI Elena Gordo**. Amount funded 861250 €
4. PROJECT: Procesado de materiales compuestos inorgánicos por técnicas de manufactura aditiva basada en ligantes (MicroMaters@AM). Ref. PID2019-106631GB-C43. Funded by Ministerio de Ciencia e Innovación. Participants: UC3M, ICV-CSIC, UPC, UPM. Dates: 01/06/2020 - 31/05/2023. PI Antonia Jimenez, Elisa M^a Ruiz. Amount funded 96800 €. Participation in **research team**.
5. PROJECT: Powder Metallurgy Approaches for Next-Generation Bipolar Plate Materials (PERMEABLE). Funded by Comisión Europea. H2020-MSCA-IF-2020. Dates: 01/06/2021 - 31/05/2023- PI: Carlos Romero (UC3M), **Supervisor: Elena Gordo (UC3M)**. Amount funded 172932,48 €
6. PROJECT: Oportunidades de desarrollo y aplicación de PulviMetalurgia en electrolizadores de intercambio iónico de rendimiento mejorado para la obtención de H2 verde. - PMEMEL-H2. Ref. CPP2022-009706. Funded by AGENCIA ESTATAL DE INVESTIGACION (AEI). Dates: 01/06/2021 - 31/05/2023. **PI: Elena Gordo (UC3M)**. Participants Water2kw (coordinator company); URJC; UC3M. Amount funded 8980,25 € (UC3M)
7. PROJECT: Accelerate the design and Insertion of non-CRM hard Materials for Next generation EXTreme applications (AIM-NEXT). Funded by Comisión Europea. HORIZON-MSCA-2022-DN-01 – MSCA Doctoral Networks 2022. Dates: 01/02/2024 -31/01/2028. **PI: Elena Gordo (UC3M)**. Participants: UPC (coordinador); E6, INP-UGA, KTH, Lund Univ.; RWHT, UC3M, UAveiro, Durit, FILMS, Hilti, Sandvik, Seco. Amount funded: 251971 € (UC3M)
8. PROJECT: Ayuda para la contratación de Ayudante de Investigación (Programa de Empleo Juvenil, Ref. PEJ-2021-AI/IND-21418). Funded by CAM. CONSEJERÍA DE EDUCACIÓN E INVESTIGACION. Dates 01/11/2022 - 31/10/2024. **PI: Elena Gordo (UC3M)**. Amount funded: 45000 €
9. PROJECT: Soluciones sostenibles de impresion 3D e ingeniería de Superficies para aleaciones de magnesio y titanio (SUPREMETAL). Ref. PID2024-158719OB-C32. Funded by Ministerio de Ciencia e Innovación, Agencia Estatal de Investigación. Proyectos de Generación de Conocimiento 2024. Participants: UC3M, URJC (coordinator), UCM. Dates: 01/01/2026 - 31/12/2028. **PI: Elena Gordo**. Amount funded 125000 €

C.4. Contracts, technological or transfer merits,

Participation in 34 research projects with industrial companies; 2 patents; NDAs signed with companies such as Ceratizit, Incus 3D. As an example:

PROJECT: Greener saw blades by reducing the use of critical resources in hard materials (SawHard). Funded by HILTI AG. Participants: UC3M, HILTI AG, HYPERION. Dates: 01/01/2024- 31/06/2027. PI: Elena Gordo (UC3M). Amount: 172500 €

PROJECT: Study for the addition of graphene and ceramic nanoparticles for the preparation of alternative hardmetals. Funded by ARCELORMITTAL INNOVACIÓN INVESTIGACIÓN e INVERSIÓN S.L.U. Dates 01/08/2021 – 31/12/2022. PI Elena Gordo (UC3M). Amount funded 34823,5 €

PATENT: Aleaciones de titanio de bajo coste y método para la preparación de las mismas. INVENTORS: Pablo García Esteban, Leandro Bolzoni, Elisa María Ruiz Navas, Elena Gordo Odériz. FILE NUMBER ES2341162, DATE: 15/06/2010

PATENT: Bipolar plate of a proton-exchange membrane fuel cell and methods of manufacturing. INVENTORS Elena Gordo, Carlos Romero. File number ES2022/070303. Date 2022-05-17