

Emilio Martínez-Pañeda

Associate Professor) & UKRI Future Leaders Fellow | University of Oxford
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SUMMARY

I am an Associate Professor at the University of Oxford, where I head the Mechanics of Materials Lab. As outlined below, during my 10-year academic career (PhD Thesis 2013-2016), I have published 95 high-impact scientific articles (63 as the corresponding author, h-index=34, 3665 citations), attracted and managed over £5M in research funding (+£20M as co-I), contributed to +40 conferences, been awarded numerous prizes and fellowships of high prestige, delivered 34 invited seminars and 13 plenary/keynote conference talks, co-organized several international conferences and symposiums, delivered +400 hours of lectures and tutorials, supervised 20 PhD students (11 as main supervisor, 4 completed) and 15 postdocs, and maintained a close relationship with industry (through 8 R&D contracts and participating in developing a spin-off).

EMPLOYMENT

Associate Professor & UKRI Future Leaders Fellow, **University of Oxford** 09/2023 - Present
Head of the Mechanics of Materials Lab (15 PDRAs, 11 PhD students)
Visiting Reader, Imperial College London. *Academic Guest*, Technical University of Denmark.

Senior Lecturer (US Assoc. Prof.) & Future Leaders Fellow, **Imperial College London** 09/2021 - 09/2023

Lecturer (US Asst. Professor) & 1851 Research Fellow, **Imperial College London** 09/2019 - 09/2021

Research Fellow, **University of Cambridge** 09/2017 - 08/2019
Cambridge Centre for Micromechanics. PIs: Profs. Norman Fleck FRS and Vikram Deshpande FRS

H.C. Ørsted Fellow, **Technical University of Denmark (DTU)** 07/2016 - 08/2017
Department of Mechanical Engineering. PI: Prof. Christian Niordson

EDUCATION

Ph.D., Environmentally Assisted Cracking (*Summa Cum Laude*) 03/2013 - 06/2016
Supervisor: Prof. Covadonga Betegón University of Oviedo

International programme: 08-12/2014 & 08/2015 at DTU (Prof. C.F. Niordson); 05-07/2015 at the University of Luxembourg (Prof. S. Bordas); 09-12/2015 at the University of Cambridge (Prof. N.A. Fleck FRS FREng)

Awards: Springer PhD Thesis Prize; Extraordinary Doctoral Prize; Best PhD Thesis in Engineering (1st/99)

M.Sc., Structural Engineering (distinction, 92%, 1st). University of Granada 2012

M.Eng., General Engineering (Industrial Engineering). University of Oviedo 2011

AWARDS & FELLOWSHIPS

ERC Starting Grant (*ResistHfracture*). European Commission / UKRI 2023
Most prestigious grant in the European Union. 5-year project, 1.5M€.

Young Investigator Medal (Spain's Royal Academy of Engineering) 2023
Annual award given by Spain's Royal Academy of Engineering to a young engineer (<40 years old) who has made outstanding contributions to the field of engineering.

President's Medal for Outstanding Early Career Researcher (Imperial College) [£2,500] 2022
Annual award distinguishing one early career (<10 years after PhD viva) member of staff that has shown outstanding research achievements.

UK Young Engineer of the Year (Royal Academy of Engineering) [£3,000] 2021
Annual award given by the UK Royal Academy of Engineering to an engineer "who has demonstrated excellence in the early stage of their career".

UKRI Future Leaders Fellowship 2021

4+3 years fellowship with a total funding of ~£2M to “tackle ambitious and challenging research”.

- Gustavo Colanetti Medal (RILEM)** 2021
Award given by the RILEM to “researchers under 35 years of age, who have made an outstanding scientific contribution to the field of construction materials and structures”.
- IMechE Prestige Award for Risk Reduction in Mechanical Engineering** (£1,500) 2020
Award given by the Institution of Mechanical Engineers (IMechE) recognising an “eminent engineer who has contributed most in the understanding and/or reduction of risk in mechanical engineering”.
- Simo Prize. Spanish Society for Numerical Methods in Engineering (SEMNI)** 2020
Prize given by SEMNI to the best young (<35) Spanish scientist in the broad area of computational mechanics.
- Keith Miller Prize. FESI** 2019
Prize given by the UK Forum for Engineering Structural Integrity (FESI) during their annual conference to the best engineering or scientific work in their area (structural integrity).
- Marie Skłodowska-Curie Individual Fellowship (Standard EF, EU H2020)** (Declined) 2018
Rate of success ~12%. Most renowned post-doctoral fellowship in the European Union.
- Brunel Award & 1851 Research Fellowship - Royal Commission 1851 Exhibition** 2018
Rate of success 4%. 13 Nobel Prize winners among the awardees. 8 Fellowships are given every year, one of them being distinguished with the Brunel award for the “highest placed candidate who has proposed a project to be pursued in an academic engineering environment”.
- Junior Research Fellowship – Wolfson College Cambridge** 2018
Competitive fellowship with a typical success rate below 5%. Fellows are members of the Governing Body and receive meals, research allowance and accommodation from the College.
- Extraordinary Doctoral Prize & Best PhD Thesis – University of Oviedo** 2017
Best PhD Thesis in Engineering (ranked 1st out of 99 Theses).
- Clarín Fellowship – Marie Curie COFUND Actions** (Declined) 2017
Competitive Spanish post-doctoral program (success rate ~15%).
- Acta Student Award** (\$2000 + expenses to attend the award ceremony) 2017
Best paper published by a PhD student in 2016 in Acta Materialia, the highest ranked journal in mechanics of materials. First student from Spain to receive this award.
- Springer PhD Theses Prize** (500€ + publication of the PhD Thesis as a book) 2017
Award devoted to “recognize outstanding PhD research” and considered only by invited nomination.
- H.C. Ørsted Postdoctoral Fellowship** (2016-2018) [DTU-Marie Curie COFUND Actions] 2016
Competitive post-doctoral call (2016 rate of success: 8%). The project proposal received the maximum qualification.
- University of Oviedo Pre-doctoral Fellowship** (2013-2017) 2013
Fellowship awarded by the University of Oviedo to “retain talent and ensure that its best students conduct research and teaching leading to a PhD degree”. Ranked 2nd in Engineering.
- Other competitive scholarships and awards
- 2017: Otto Mønstedts Grant
- 2016: IUTAM scholarship to attend the ICTAM 2016 Congress (Montreal, Canada)
- 2016: ECCOMAS scholarship to attend the ECCOMAS 2016 Congress (Crete, Greece)
- 2015: FLOGEN Tech. Inc. grant to attend the Aifantis International Symposium – SIPS2015
- 2015: Best short oral presentation. 32nd Spanish Conference on Fracture (Zamora, Spain)
- 2015: Excellence mobility grant. International Campus of Excellence – University of Oviedo
- 2015: Erasmus Training Mobility Program – University of Oviedo
- 2014: Best oral presentation. PhD Solid Mechanics Conference (Copenhagen, Denmark)

2014: Excellence mobility grant. International Campus of Excellence – University of Oviedo
 2014: IACM scholarship to attend the XI World Congress on Computational Mechanics
 2014: IUTAM scholarship. Accommodation and board for IUTAM’s SMDS Symposium.
 2013: CIMNE scholarship. Accommodation and board for CIMNE’s school on Computational Mechanics for Moving Boundaries and Interfaces
 2012: IUTAM scholarship. Accommodation and board for IUTAM’s Symposium on Fracture.
 2012: University of Brescia scholarship. Accommodation and board for the summer school on Computational Multiscale Fracture Mechanics.
 2010 & 2011: Research Fellowship. Project FFI2009-11898. Spanish Ministry of Science
 2002: Award. Regional Mathematical Olympiad.

INVITED SEMINAR TALKS

Tata Steel Ltd [Youtube link]	10/01/2024
Zienkiewicz Institute, Swansea University	23/11/2023
University of Oxford - Civil & Offshore Engineering seminars	21/11/2023
CIMNE Barcelona [Youtube link]	03/05/2023
Petrobras Technology & Innovation centre (CENPES)	31/03/2023
Federal University of Rio de Janeiro (spring term opening lecture)	27/03/2023
University of St Andrews	15/03/2023
Queen Mary University of London	01/03/2023
Institution of Mechanical Engineers (IMechE)	22/02/2023
NAFEMS	07/12/2023
Abaqus / Dassault Systemes (Online)	22/09/2022
Guangdong Technion – Israel Institute of Technology (GTIIT) (Online)	04/08/2022
IMT Lucca (Online)	23/06/2022
TU Bergakademie Freiberg	02/06/2022
University of Manchester - Modelling and Simulation seminar series	19/05/2022
COMSOL & IMechE seminar series	12/04/2022
University of Warwick - Centre for Predictive Modelling seminar series	21/02/2022
Imperial Energy Futures Lab [Virtual ; Youtube link]	10/02/2022
University of Porto	30/11/2021
University of Oviedo - Faculty of Engineering Distinguished seminars	08/10/2021
Max Planck Institut für Eisenforschung (MPIE) [Virtual ; Youtube link]	18/02/2021
HYDROGENIUS-I2CNER-Kyushu University [Virtual ; Youtube link]	28/01/2021
Spanish Society for Numerical Methods in Engineering (SEMNI) [Virtual ; Youtube link]	22/12/2020
Ørsted A/S	17/09/2020
Imperial College London – Engineering Alloys Seminars	19/02/2020
University of Oxford - Solid Mechanics Seminars	10/02/2020
Nottingham University	16/10/2019
Cranfield University	06/06/2019
Imperial College London - CEE Department	29/05/2019
Institution of Mechanical Engineers (IMechE), London	15/05/2019
University of Seville	01/04/2019
Texas A&M - CiMMS Seminars	06/03/2019
MIT	25/02/2019
Danish Center for Applied Mathematics and Mechanics (DCAMM)	21/11/2018
British Petroleum (BP) Headquarters (Sunbury, London)	23/07/2018
University of Cambridge, Bio & Micromechanics Seminar Series	23/02/2018
Queen Mary, University of London	24/01/2018
Carlos III University of Madrid	18/10/2017
University of Virginia	13/10/2017
Norwegian University of Science and Technology (NTNU, Trondheim)	24/02/2017
IMDEA Materials	28/10/2016

JOURNAL PUBLICATIONS

The corresponding author has been underlined. As much information as possible is provided, including journal impact factors (WOS JCR 2021) and the number of citations (Google Scholar), but DOI links are given to facilitate a more appropriate assessment. H-index: 34 (Google Scholar; Web of Science – 30). Total number of citations: 3665 ([Google Scholar](#)).

- [95] A. Baktheer, E. Martínez-Pañeda, F. Aldakheel. *Phase field cohesive zone modeling for fatigue crack propagation in quasi-brittle materials*. Computer Methods in Applied Mechanics and Engineering 422, 116834 (2024). IF: 5.3. Citations: -. DOI:[10.1016/j.cma.2024.116834](https://doi.org/10.1016/j.cma.2024.116834)
- [94] T. K. Mandal, J. Parker, M. Gagliano, E. Martínez-Pañeda. *Computational predictions of weld structural integrity in hydrogen transport pipelines*. International Journal of Hydrogen Energy (in press). IF: 7.2. Citations: -. DOI:[10.1016/j.ijhydene.2024.01.258](https://doi.org/10.1016/j.ijhydene.2024.01.258)
- [93] E. Korec, M. Jirasek, H.S. Wong, E. Martínez-Pañeda. *Phase-field chemo-mechanical modelling of corrosion-induced cracking in reinforced concrete subjected to non-uniform chloride-induced corrosion*. Theoretical and Applied Fracture Mechanics 129, 104233 (2024). IF: 5.3. Citations: -. DOI:[10.1016/j.tafmec.2023.10423](https://doi.org/10.1016/j.tafmec.2023.10423)
- [92] G. Álvarez, Z. Harris, K. Wada, C. Rodríguez, E. Martínez-Pañeda. *Hydrogen embrittlement susceptibility of additively manufactured Stainless Steel 316L: influence of postprocessing, printing direction, temperature and pre-straining*. Additive Manufacturing 78, 103834 (2023). IF: 11. Citations: 1. DOI:[10.1016/j.addma.2023.103834](https://doi.org/10.1016/j.addma.2023.103834)
- [91] C. Konstantinou, E. Martínez-Pañeda, G. Biscontin, N.A. Fleck. *Fracture of bio-cemented sands*. Extreme Mechanics Letters 64, 102086 (2023). IF: 4.7. Citations: -. DOI:[10.1016/j.eml.2023.102086](https://doi.org/10.1016/j.eml.2023.102086)
- [90] H.C.W. Parks, A.M. Boyce, A. Wade, T.M.M. Heenan, C. Tan, E. Martínez-Pañeda, P.R. Shearing, D.J.L. Brett, R. Jervis. *Direct Observations of Electrochemically Induced Intergranular Cracking in NMC811 Particles*. Journal of Materials Chemistry A 11, 21322 (2023). IF: 11.9. Citations: 1. DOI:[10.1039/D3TA03057A](https://doi.org/10.1039/D3TA03057A)
- [89] I. Holte, K.L. Nielsen, E. Martínez-Pañeda, C.F. Niordson. *A micro-mechanics based extension of the GTN continuum model accounting for random void distributions*. European Journal of Mechanics A/Solids (in press). IF: 4/1. Citations: -. DOI:[10.1016/j.euromechsol.2023.105123](https://doi.org/10.1016/j.euromechsol.2023.105123)
- [88] T. Hageman, E. Martínez-Pañeda. *A phase field-based framework for electro-chemo-mechanical fracture: crack-contained electrolytes, chemical reactions and stabilisation*. Computer Methods in Applied Mechanics and Engineering 415, 116235 (2023). IF: 7.2. Citations: 2. DOI:[10.1016/j.cma.2023.116235](https://doi.org/10.1016/j.cma.2023.116235)
- [87] A. Islas, A. Rodríguez-Fernández, C. Betegón, E. Martínez-Pañeda, A. Pandal. *Biomass dust explosions: CFD simulations and venting experiments in a 1 m³ silo*. Process Safety and Environmental Protection 176, 1048-1062 (2023). IF: 7.926. Citations: 2. DOI:[10.1016/j.psep.2023.06.074](https://doi.org/10.1016/j.psep.2023.06.074)
- [86] A. Raina, V.S. Deshpande, E. Martínez-Pañeda, N.A. Fleck. *Analysis of hydrogen diffusion in the three stage electro-permeation test*. Continuum Mechanics and Thermodynamics (in press). IF: 3.285. Citations: 1.
- [85] E. Korec, M. Jirasek, H.S. Wong, E. Martínez-Pañeda. *A phase-field chemo-mechanical model for corrosion-induced cracking in reinforced concrete*. Construction and Building Materials 393, 131964 (2023). IF: 7.693. Citations: 2. DOI:[10.1016/j.conbuildmat.2023.131964](https://doi.org/10.1016/j.conbuildmat.2023.131964)
- [84] T. Hageman, C. Andrade, E. Martínez-Pañeda. *Corrosion rates under charge-conservation conditions*. Electrochimica Acta 461, 142624 (2023). IF: 7.336. Citations: 3. DOI:[10.1016/j.electacta.2023.142624](https://doi.org/10.1016/j.electacta.2023.142624)
- [83] C. Cui, R. Ma, E. Martínez-Pañeda. *Electro-chemo-mechanical phase field modeling of localized corrosion: theory and COMSOL implementation*. Engineering with Computers 39, 3877–3894 (2023). IF: 8.083. Citations: 5. DOI:[10.1007/s00366-023-01833-8](https://doi.org/10.1007/s00366-023-01833-8)
- [82] S. Kovacevic, W. Ali, E. Martínez-Pañeda, J. LLorca. *Phase-field modeling of pitting and mechanically-assisted corrosion of Mg alloys for biomedical applications*. Acta Biomaterialia 164, 641-658 (2023).

IF: 10.633. Citations: 5. DOI:[10.1016/j.actbio.2023.04.011](https://doi.org/10.1016/j.actbio.2023.04.011)

- [81] P.K. Kristensen, A. Golahmar, **E. Martínez-Pañeda**, C.F. Niordson. *Accelerated high-cycle phase field fatigue predictions*. *European Journal of Mechanics A/Solids* 100, 104991 (2023). IF: 4.873. Citations: 4. DOI:[10.1016/j.euromechsol.2023.104991](https://doi.org/10.1016/j.euromechsol.2023.104991)
- [80] K. Au-Yeung, A. Quintanas-Corominas, **E. Martínez-Pañeda**, W. Tan. *Hygroscopic phase field modelling of composite materials*. *Engineering with Computers* 39, 3847–3864 (2023). IF: 8.083. Citations: 1. DOI:[10.1007/s00366-023-01820-z](https://doi.org/10.1007/s00366-023-01820-z)
- [79] S. Lucarini, F.P.E. Dunne, **E. Martínez-Pañeda**. *An FFT-based crystal plasticity phase-field model for micromechanical fatigue cracking based on the stored energy density*. *International Journal of Fatigue* 172, 107670 (2023). IF: 5.489. Citations: 1. DOI:[10.1016/j.ijfatigue.2023.107670](https://doi.org/10.1016/j.ijfatigue.2023.107670)
- [78] A. Zafra, G. Álvarez, G. Benoit, G. Henaff, **E. Martínez-Pañeda**, C. Rodríguez, J. Belzunce. *Hydrogen-assisted fatigue crack growth: pre-charging vs in-situ testing in gaseous environments*. *Materials Science & Engineering A* 871, 144885 (2023). IF: 6.044. Citations: 1. DOI:[10.1016/j.msea.2023.144885](https://doi.org/10.1016/j.msea.2023.144885)
- [77] T. Hageman, **E. Martínez-Pañeda**. *Stabilising effects of lumped integration schemes for the simulation of metal-electrolyte reactions*. *Journal of The Electrochemical Society* 170, 021511 (2023). IF: 4.386. Citations: 2. DOI:[10.1149/1945-7111/acb971](https://doi.org/10.1149/1945-7111/acb971)
- [76] L. Quinteros, E. García-Macías, **E. Martínez-Pañeda**. *Electromechanical phase-field fracture modelling of piezoresistive CNT-based composites*. *Computer Methods in Applied Mechanics and Engineering* 407, 115941 (2023). IF: 6.588. Citations: 3. DOI:[10.1016/j.cma.2023.115941](https://doi.org/10.1016/j.cma.2023.115941)
- [75] A. Golahmar, C.F. Niordson, **E. Martínez-Pañeda**. *A phase field model for high-cycle fatigue: total-life analysis*. *International Journal of Fatigue* 170, 107558 (2023). IF: 5.489. Citations: 2. DOI:[10.1016/j.ijfatigue.2023.107558](https://doi.org/10.1016/j.ijfatigue.2023.107558)
- [74] J.A. Lewis, S.E. Sandoval, Y. Liu, D.L. Nelson, S.G. Yoon, R. Wang, Y. Zhao, M. Tian, P. Shevchenko, **E. Martínez-Pañeda**, M.T. McDowell. *Accelerated Short Circuiting in Anode-Free Solid-State Batteries Driven by Local Lithium Depletion*. *Advanced Energy Materials* 13, 2204186 (2023). IF: 29.698. Citations: 11. DOI:[10.1002/aenm.202204186](https://doi.org/10.1002/aenm.202204186)
- [73] J.C. García-Merino, C. Calvo-Jurado, **E. Martínez-Pañeda**, E. García-Macías. *Multielement polynomial chaos Kriging-based metamodelling for Bayesian inference of non-smooth systems*. *Applied Mathematical Modelling* 116, 510-531 (2023). IF: 5.336. Citations: -. DOI:[10.1016/j.apm.2022.11.039](https://doi.org/10.1016/j.apm.2022.11.039)
- [72] A. Zafra, Z. Harris, E. Korec, **E. Martínez-Pañeda**. *On the relative efficacy of electropermeation and isothermal desorption approaches for measuring hydrogen diffusivity*. *International Journal of Hydrogen Energy* 48, 1218-1233 (2023). IF: 7.139. Citations: 2. DOI:[10.1016/j.ijhydene.2022.10.025](https://doi.org/10.1016/j.ijhydene.2022.10.025)
- [71] T. Hageman, **E. Martínez-Pañeda**. *An electro-chemo-mechanical framework for predicting hydrogen uptake in metals due to aqueous electrolytes*. *Corrosion Science* 208, 110681 (2022). IF: 7.720. Citations: 4. DOI:[10.1016/j.corsci.2022.110681](https://doi.org/10.1016/j.corsci.2022.110681)
- [70] Y. Navidtehrani, C. Betegón, R.W. Zimmerman, **E. Martínez-Pañeda**. *Griffith-based analysis of crack initiation location in a Brazilian test*. *International Journal of Rock Mechanics and Mining Sciences* 159, 105227 (2022). IF: 6.849. Citations: 2. DOI:[10.1016/j.ijrmms.2022.105227](https://doi.org/10.1016/j.ijrmms.2022.105227)
- [69] Y. Navidtehrani, C. Betegón, **E. Martínez-Pañeda**. *A general framework for decomposing the phase field fracture driving force, particularised to a Drucker-Prager failure surface*. *Theoretical and Applied Fracture Mechanics* 121, 103555 (2022). IF: 4.374. Citations: 8. DOI:[10.1016/j.tafmec.2022.103555](https://doi.org/10.1016/j.tafmec.2022.103555)
- [68] T. Clayton, R. Duddu, M. Siegert, **E. Martínez-Pañeda**. *A stress-based poro-damage phase field model for hydrofracturing of creeping glaciers and ice shelves*. *Engineering Fracture Mechanics* 272, 108693 (2022). IF: 4.898. Citations: 4. DOI:[10.1016/j.engfracmech.2022.108693](https://doi.org/10.1016/j.engfracmech.2022.108693)
- [67] A. Díaz, J.M. Alegre, I.I. Cuesta, **E. Martínez-Pañeda**, Z. Zhang. *Notch fracture predictions using the phase field method for Ti-6Al-4V produced by Selective Laser Melting after different post-processing conditions*. *Theoretical and Applied Fracture Mechanics* 121, 103510 (2022). IF: 4.374. Citations: 1. DOI:[10.1016/j.tafmec.2022.103510](https://doi.org/10.1016/j.tafmec.2022.103510)
- [66] A. Valverde, **E. Martínez-Pañeda**, A. Quintanas-Corominas, J. Reinoso, M. Paggi. *Computational modelling of hydrogen assisted fracture in polycrystalline materials*. *International Journal of Hydrogen Energy*

47, 32235-32251 (2022). IF: 7.139. Citations: 6. DOI:[10.1016/j.ijhydene.2022.07.117](https://doi.org/10.1016/j.ijhydene.2022.07.117)

[65] A. Islas, A. Rodríguez Fernández, C. Betegón, **E. Martínez-Pañeda**, A. Pandal. *Computational Assessment of Biomass Dust Explosions in the 20L Sphere*. Process Safety and Environmental Protection 165, 791-814 (2022). IF: 7.926. Citations: 5. DOI:[10.1016/j.psep.2022.07.029](https://doi.org/10.1016/j.psep.2022.07.029)

[64] Y. Zhao, R. Wang, **E. Martínez-Pañeda**. *A phase field electro-chemo-mechanical formulation for predicting void evolution at the Li-electrolyte interface in all-solid-state batteries*. Journal of the Mechanics and Physics of Solids 167, 104999 (2022). IF: 5.582. Citations: 13. DOI:[10.1016/j.jmps.2022.104999](https://doi.org/10.1016/j.jmps.2022.104999)

[63] W. Ai, B. Wu, **E. Martínez-Pañeda**. *A coupled phase field formulation for modelling fatigue cracking in lithium-ion battery electrode particles*. Journal of Power Sources 544, 231805 (2022). IF: 9.794. Citations: 20. DOI:[10.1016/j.jpowsour.2022.231805](https://doi.org/10.1016/j.jpowsour.2022.231805)

[62] C. Cui, R. Ma, **E. Martínez-Pañeda**. *A generalised, multi-phase-field theory for dissolution-driven stress corrosion cracking and hydrogen embrittlement*. Journal of the Mechanics and Physics of Solids 166, 104951 (2022). IF: 5.582. Citations: 14. DOI:[10.1016/j.jmps.2022.104951](https://doi.org/10.1016/j.jmps.2022.104951)

[61] R. Fernández-Sousa, C. Betegón, **E. Martínez-Pañeda**. *Cohesive zone modelling of hydrogen assisted fatigue crack growth: the role of trapping*. International Journal of Fatigue 162, 106935 (2022). IF: 5.489. Citations: 5. DOI:[10.1016/j.ijfatigue.2022.106935](https://doi.org/10.1016/j.ijfatigue.2022.106935)

[60] L. Quinteros, E. García-Macías, **E. Martínez-Pañeda**. *Micromechanics-based phase field fracture modelling of CNT composites*. Composites Part B: Engineering 236, 109788 (2022). IF: 11.322. Citations: 16. DOI:[10.1016/j.compositesb.2022.109788](https://doi.org/10.1016/j.compositesb.2022.109788)

[59] A. Boyce, **E. Martínez-Pañeda**, A. Wade, Y.S. Zhang, J.J. Bailey, T.M.M. Heenan, D.J.L. Brett, P.R. Shearing. *Cracking predictions of lithium-ion battery electrodes by X-ray computed tomography and modelling*. Journal of Power Sources 526, 231119 (2022). IF: 9.794. Citations: 26. DOI:[10.1016/j.jpowsour.2022.231119](https://doi.org/10.1016/j.jpowsour.2022.231119)

[58] W. Tan, **E. Martínez-Pañeda**. *Phase field fracture predictions of microscopic bridging behaviour of composite materials*. Composite Structures 286, 115242 (2022). IF: 6.603. Citations: 16. DOI:[10.1016/j.compstruct.2022.115242](https://doi.org/10.1016/j.compstruct.2022.115242)

[57] M. Simoes, C. Braithwaite, A. Makaya, **E. Martínez-Pañeda**. *Modelling fatigue crack growth in Shape Memory Alloys*. Fatigue & Fracture of Engineering Materials & Structures 45, 1243-1257 (2022). IF: 3.373. Citations: 15. DOI:[10.1111/ffe.13638](https://doi.org/10.1111/ffe.13638)

[56] A. Islas, A. Rodríguez Fernández, C. Betegón, **E. Martínez-Pañeda**, A. Pandal. *CFD simulations of turbulent dust dispersion in the 20L vessel using OpenFOAM*. Powder Technology 397, 117033 (2022). IF: 5.640. Citations: 7. DOI:[10.1016/j.powtec.2021.117033](https://doi.org/10.1016/j.powtec.2021.117033)

[55] A. Zafra, Z.H. Harris, C. Sun, **E. Martínez-Pañeda**. *Comparison of hydrogen diffusivities measured by electrochemical permeation and temperature-programmed desorption in cold-rolled pure iron*. Journal of Natural Gas Science and Engineering 98, 104365 (2022) [SI on Stress Corrosion Cracking]. IF: 5.285. Citations: 8. DOI:[10.1016/j.jngse.2021.104365](https://doi.org/10.1016/j.jngse.2021.104365)

[54] Z. Khalil, A.Y. Elghazouli, **E. Martínez-Pañeda**. *A generalised phase field model for fatigue crack growth in elastic-plastic solids with an efficient monolithic solver*. Computer Methods in Applied Mechanics and Engineering 388, 114286 (2022). IF: 6.588. Citations: 34. DOI:[10.1016/j.cma.2021.114286](https://doi.org/10.1016/j.cma.2021.114286)

[53] A. Golahmar, P.K. Kristensen, C.F. Niordson, **E. Martínez-Pañeda**. *A phase field model for hydrogen-assisted fatigue*. International Journal of Fatigue 154, 106521 (2022). IF: 5.489. Citations: 28. DOI:[10.1016/j.ijfatigue.2021.106521](https://doi.org/10.1016/j.ijfatigue.2021.106521)

[52] V. Shlyannikov, **E. Martínez-Pañeda**, A. Tumanov, R. Khamidullin. *Mode I and Mode II stress intensity factors and dislocation density behaviour in strain gradient plasticity*. Theoretical and Applied Fracture Mechanics 116, 103128 (2021). IF: 4.374. Citations: 8. DOI:[10.1016/j.tafmec.2021.103128](https://doi.org/10.1016/j.tafmec.2021.103128)

[51] S.S. Shishvan, S. Assadpour-asl, **E. Martínez-Pañeda**. *A mechanism-based gradient damage model for metallic fracture*. Engineering Fracture Mechanics 255, 107927 (2021). IF: 4.898. Citations: 11. DOI:[10.1016/j.engfracmech.2021.107927](https://doi.org/10.1016/j.engfracmech.2021.107927)

[50] **E. Martínez-Pañeda**. *Progress and opportunities in modelling environmentally assisted cracking*. RILEM Technical Letters 6, 70-77 (2021) [Gustavo Colonnetti Medal invited paper]. Citations: 10.

DOI:[10.21809/rilemtechlett.2021.145](https://doi.org/10.21809/rilemtechlett.2021.145)

- [49] M. Isfandbod, **E. Martínez-Pañeda**. *A mechanism-based multi-trap phase field model for hydrogen assisted fracture*. International Journal of Plasticity 144, 103044 (2021). IF: 8.500. Citations: 34. DOI:[10.1016/j.ijplas.2021.103044](https://doi.org/10.1016/j.ijplas.2021.103044)
- [48] Y. Navidtehrani, C. Betegón, **E. Martínez-Pañeda**. *A simple and robust Abaqus implementation of the phase field fracture method*. Applications in Engineering Science 6, 100050 (2021). Citations: 49. DOI:[10.1016/j.apples.2021.100050](https://doi.org/10.1016/j.apples.2021.100050)
- [47] P.K. Kristensen, C.F. Niordson, **E. Martínez-Pañeda**. *An assessment of phase field fracture: crack initiation and growth*. Philosophical Transactions of the Royal Society A 379, 20210021 (2021). IF: 4.226. Citations: 53. DOI:[10.1098/rsta.2021.0021](https://doi.org/10.1098/rsta.2021.0021)
- [46] Y. Navidtehrani, C. Betegón, **E. Martínez-Pañeda**. *A unified Abaqus implementation of the phase field fracture method using only a user material subroutine*. Materials 14(8), 1913 (2021). IF: 3.748. Citations: 43. DOI:[10.3390/ma14081913](https://doi.org/10.3390/ma14081913)
- [45] C. Cui, R. Ma, **E. Martínez-Pañeda**. *A phase field formulation for dissolution-driven stress corrosion cracking*. Journal of the Mechanics and Physics of Solids 147, 104254 (2021). IF: 5.582. Citations: 76. DOI:[10.1016/j.jmps.2020.104254](https://doi.org/10.1016/j.jmps.2020.104254)
- [44] P. Verma, J. Ubaid, A. Schiffer, A. Jain, **E. Martínez-Pañeda**, S. Kumar. *Essential work of fracture assessment of acrylonitrile butadiene styrene (ABS) processed via fused filament fabrication additive manufacturing*. The International Journal of Advanced Manufacturing Technology 113, 771-784 (2021). IF: 3.226. Citations: 13. DOI:[10.1007/s00170-020-06580-4](https://doi.org/10.1007/s00170-020-06580-4)
- [43] W. Tan, **E. Martínez-Pañeda**. *Phase field predictions of microscopic fracture and R-curve behaviour of fibre-reinforced composites*. Composites Science and Technology 202, 108539 (2021). IF: 9.879. Citations: 52. DOI:[10.1016/j.compscitech.2020.108539](https://doi.org/10.1016/j.compscitech.2020.108539)
- [42] I. Holte, A. Srivastava, **E. Martínez-Pañeda**, C.F. Niordson, K.L. Nielsen. *Interaction of void spacing and material size effect on inter-void flow localisation*. Journal of Applied Mechanics 88(2), 021010 (2021). IF: 2.168. Citations: 3. DOI:[10.1115/1.4049022](https://doi.org/10.1115/1.4049022)
- [41] V. Shlyannikov, **E. Martínez-Pañeda**, A. Tumanov, A. Tartygasheva. *Crack tip fields and fracture resistance parameters based on strain gradient plasticity*. International Journal of Solids and Structures 208-209, 63-82 (2021). IF: 3.667. Citations: 25. DOI:[10.1016/j.ijsolstr.2020.10.015](https://doi.org/10.1016/j.ijsolstr.2020.10.015)
- [40] M. Simoes, **E. Martínez-Pañeda**. *Phase field modelling of fracture and fatigue in Shape Memory Alloys*. Computer Methods in Applied Mechanics and Engineering 373, 113504 (2021). IF: 6.588. Citations: 51. DOI:[10.1016/j.cma.2020.113504](https://doi.org/10.1016/j.cma.2020.113504)
- [39] Hirshikesh, **E. Martínez-Pañeda**, S. Natarajan. *Adaptive phase field modelling of crack propagation in orthotropic functionally graded materials*. Defence Technology 17, 185-195 (2021). IF: 4.035. Citations: 26. DOI:[10.1016/j.dt.2020.03.004](https://doi.org/10.1016/j.dt.2020.03.004)
- [38] S. Askarinejad, **E. Martínez-Pañeda**, I.I. Cuesta, N.A. Fleck. *Mode II fracture of an MMA adhesive layer: theory versus experiment*. European Journal of Mechanics A/Solids 86, 104133 (2021). IF: 4.873. Citations: 14. DOI: [10.1016/j.euromechsol.2020.104133](https://doi.org/10.1016/j.euromechsol.2020.104133)
- [37] P.K. Kristensen, C.F. Niordson, **E. Martínez-Pañeda**. *Applications of phase field fracture in modelling hydrogen assisted failures*. Theoretical and Applied Fracture Mechanics 110, 102837 (2020). IF: 4.374. Citations: 40. DOI:[10.1016/j.tafmec.2020.102837](https://doi.org/10.1016/j.tafmec.2020.102837)
- [36] A. Díaz, A. Zafra, **E. Martínez-Pañeda**, J.M. Alegre, J. Belzunce, I.I. Cuesta. *Simulation of hydrogen permeation through pure iron for trapping and surface phenomena characterisation*. Theoretical and Applied Fracture Mechanics 110, 102818 (2020). IF: 4.374. Citations: 12. DOI:[10.1016/j.tafmec.2020.102818](https://doi.org/10.1016/j.tafmec.2020.102818)
- [35] R. Fernández-Sousa, C. Betegón, **E. Martínez-Pañeda**. *Analysis of the influence of microstructural traps on hydrogen assisted fatigue*. Acta Materialia 199, 253-263 (2020). IF: 9.209. Citations: 40. DOI: [10.1016/j.actamat.2020.08.030](https://doi.org/10.1016/j.actamat.2020.08.030)
- [34] S. Fuentes-Alonso, **E. Martínez-Pañeda**. *Fracture in distortion gradient plasticity*. International Journal of Engineering Science 156, 103369 (2020). IF: 7.155. Citations: 17. DOI: [10.1016/j.ijengsci.2020.103369](https://doi.org/10.1016/j.ijengsci.2020.103369)
- [33] P.K. Kristensen, C.F. Niordson, **E. Martínez-Pañeda**. *A phase field model for elastic-gradient-plastic*

- solids undergoing hydrogen embrittlement*. Journal of the Mechanics and Physics of Solids 143, 104093 (2020). IF: 5.582. Citations: 76. DOI: [10.1016/j.jmps.2020.104093](https://doi.org/10.1016/j.jmps.2020.104093)
- [32] M.A. Saeimi Sadigh, B. Paygozar, L.F.M. da Silva, **E. Martínez-Pañeda**. *Creep behaviour and tensile response of adhesively bonded polyethylene joints: single-lap and double-strap*. International Journal of Adhesion and Adhesives 102, 102666 (2020). IF: 3.848. Citations: 7. DOI: [10.1016/j.ijadhadh.2020.102666](https://doi.org/10.1016/j.ijadhadh.2020.102666)
- [31] A. Díaz, I.I. Cuesta, **E. Martínez-Pañeda**, J.M. Alegre. *Influence of charging conditions on simulated temperature-programmed desorption for hydrogen in metals*. International Journal of Hydrogen Energy 45, 23704-23720 (2020). IF: 7.139. Citations: 13. DOI: [10.1016/j.ijhydene.2020.05.192](https://doi.org/10.1016/j.ijhydene.2020.05.192)
- [30] I. García-Guzmán, J. Reinoso, A. Valverde, **E. Martínez-Pañeda**, L. Távara. *Numerical study of interface cracking in composite structures using a novel geometrically nonlinear Linear Elastic Brittle Interface Model: mixed-mode fracture conditions and application to structured interfaces*. Composite Structures 248, 112495 (2020). IF: 6.603. Citations: 12. DOI: [10.1016/j.compstruct.2020.112495](https://doi.org/10.1016/j.compstruct.2020.112495)
- [29] **E. Martínez-Pañeda**, A. Díaz, L. Wright, A. Turnbull. *Generalised boundary conditions for hydrogen transport at crack tips*. Corrosion Science 173, 108698 (2020) IF: 7.720. Citations: 31. DOI: [10.1016/j.corsci.2020.108698](https://doi.org/10.1016/j.corsci.2020.108698)
- [28] P.K. Kristensen, **E. Martínez-Pañeda**. *Phase field fracture modelling using quasi-Newton methods and a new adaptive step scheme*. Theoretical and Applied Fracture Mechanics 107, 102446 (2020). IF: 4.374, Citations: 186. DOI: [10.1016/j.tafmec.2019.102446](https://doi.org/10.1016/j.tafmec.2019.102446) [WOS Highly Cited Paper. Top 1% in Engineering]
- [27] A. Díaz, I.I. Cuesta, **E. Martínez-Pañeda**, J.M. Alegre. *Analysis of hydrogen permeation tests considering two different modelling approaches for grain boundary trapping in iron*. International Journal of Fracture 223, 17-35 (2020). IF: 2.635, Citations: 16. DOI: [10.1007/s10704-019-00411-8](https://doi.org/10.1007/s10704-019-00411-8)
- [26] **E. Martínez-Pañeda**, Z. Harris, S. Fuentes-Alonso, J.R. Scully, J.T. Burns. *On the suitability of slow strain rate tensile testing for assessing hydrogen embrittlement susceptibility*. Corrosion Science 163, 108291 (2020). IF: 7.720, Citations: 61. DOI: [10.1016/j.corsci.2019.108291](https://doi.org/10.1016/j.corsci.2019.108291)
- [25] **E. Martínez-Pañeda**, I.I. Cuesta, N.A. Fleck. *Mode II fracture of an elastic-plastic sandwich layer*. Journal of Applied Mechanics 87(3), 031001 (2020). IF: 2.168, Citations: 4. DOI: [10.1115/1.4044898](https://doi.org/10.1115/1.4044898)
- [24] I.I. Cuesta, **E. Martínez-Pañeda**, A. Díaz, J.M. Alegre. *Cold Isostatic Pressing to improve the mechanical performance of additively manufactured metallic components*. Materials 12(15), 2495 (2019). IF: 3.748, Citations: 12. DOI: [10.3390/ma12152495](https://doi.org/10.3390/ma12152495)
- [23] I.I. Cuesta, **E. Martínez-Pañeda**, A. Díaz, J.M. Alegre. *The essential work of fracture parameters for 3D printed polymer sheets*. Materials & Design 181, 107968 (2019). IF: 9.417, Citations: 18. DOI: [10.1016/j.matdes.2019.107968](https://doi.org/10.1016/j.matdes.2019.107968)
- [22] **E. Martínez-Pañeda**, S. Fuentes-Alonso, C. Betegón. *Gradient-enhanced statistical analysis of cleavage fracture*. European Journal of Mechanics A/Solids 77, 103785 (2019). IF: 4.873, Citations: 16. DOI: [10.1016/j.euromechsol.2019.05.002](https://doi.org/10.1016/j.euromechsol.2019.05.002)
- [21] Hirshikesh, S. Natarajan, R.K. Annabattula, **E. Martínez-Pañeda**. *Phase field modelling of crack propagation in functionally graded materials*. Composites Part B: Engineering 169, 239-248 (2019). IF: 11.322, Citations: 157. DOI: [10.1016/j.compositesb.2019.04.003](https://doi.org/10.1016/j.compositesb.2019.04.003)
- [20] **E. Martínez-Pañeda**, V.S. Deshpande, C.F. Niordson, N.A. Fleck. *The role of plastic strain gradients in the crack growth resistance of metals*. Journal of the Mechanics and Physics of Solids 126, 136-150 (2019). IF: 5.582, Citations: 68. DOI: [10.1016/j.jmps.2019.02.011](https://doi.org/10.1016/j.jmps.2019.02.011)
- [19] **E. Martínez-Pañeda**, N.A. Fleck. *Mode I crack tip fields: strain gradient plasticity theory versus J2 flow theory*. European Journal of Mechanics A/Solids 75: 381-388 (2019). IF: 4.873, Citations: 27. DOI: [10.1016/j.euromechsol.2019.02.009](https://doi.org/10.1016/j.euromechsol.2019.02.009)
- [18] **E. Martínez-Pañeda**. *On the finite element implementation of functionally graded materials*. Materials 2(2): 287 (2019). IF: 3.748, Citations: 36. DOI: [10.3390/ma12020287](https://doi.org/10.3390/ma12020287)
- [17] K.J. Juul, **E. Martínez-Pañeda**, K.L. Nielsen, C.F. Niordson. *Steady-state fracture toughness of elastic-plastic solids: Isotropic versus kinematic hardening*. Engineering Fracture Mechanics 207, 254-268 (2019). IF: 4.898. Citations: 7. DOI: [10.1016/j.engfracmech.2018.12.016](https://doi.org/10.1016/j.engfracmech.2018.12.016)
- [16] I.I. Cuesta, A. Willig, A. Díaz, **E. Martínez-Pañeda**, J.M. Alegre. *Pre-notched dog bone small punch*

- specimens for the estimation of fracture properties*. Engineering Failure Analysis 96, 236-240 (2019). IF: 3.634. Citations: 7. DOI: [10.1016/j.engfailanal.2018.10.012](https://doi.org/10.1016/j.engfailanal.2018.10.012)
- [15] **E. Martínez-Pañeda**, A. Golahmar, C.F. Niordson. *A phase field formulation for hydrogen assisted cracking*. Computer Methods in Applied Mechanics and Engineering 342, 742-761 (2018). IF: 6.588. Citations: 301. DOI: [10.1016/j.cma.2018.07.021](https://doi.org/10.1016/j.cma.2018.07.021) [**WOS Highly Cited Paper. Top 1% in Engineering**]
- [14] **E. Martínez-Pañeda**, N.A. Fleck. *Crack growth resistance in metallic alloys: the role of isotropic versus kinematic hardening*. Journal of Applied Mechanics 85, 111002 (2018). IF: 2.168. Citations: 11. DOI: [10.1115/1.4040696](https://doi.org/10.1115/1.4040696)
- [13] T.V. Mathew, S. Natarajan, **E. Martínez-Pañeda**. *Size effects in elastic-plastic functionally graded materials*. Composite Structures 204, 43-51 (2018). IF: 6.603. Citations: 20. DOI: [10.1016/j.compstruct.2018.07.048](https://doi.org/10.1016/j.compstruct.2018.07.048)
- [12] **E. Martínez-Pañeda**, S. del Busto, C. Betegón. *Non-local plasticity effects on notch fracture mechanics*. Theoretical and Applied Fracture Mechanics 92, 276-287 (2017). IF: 4.374. Citations: 31. DOI: [10.1016/j.tafmec.2017.09.007](https://doi.org/10.1016/j.tafmec.2017.09.007)
- [11] S. del Busto, C. Betegón, **E. Martínez-Pañeda**. *A cohesive zone framework for environmentally assisted fatigue*. Engineering Fracture Mechanics 185, 210-226 (2017). IF: 4.898. Citations: 101. DOI: [10.1016/j.engfracmech.2017.05.021](https://doi.org/10.1016/j.engfracmech.2017.05.021)
- [10] **E. Martínez-Pañeda**, S. Natarajan, S. Bordas. *Gradient plasticity crack tip characterization by means of the extended finite element method*. Computational Mechanics 59, 831-842 (2017). IF: 4.391, Citations: 45. DOI: [10.1007/s00466-017-1375-6](https://doi.org/10.1007/s00466-017-1375-6)
- [9] G. Papazafeiropoulos, M. Muñoz-Calvente, **E. Martínez-Pañeda**. *Abaqus2Matlab: a suitable tool for finite element post-processing*. Advances in Engineering Software 105, 9-16 (2017). IF: 4.255, Citations: 184. DOI: [10.1016/j.advensoft.2017.01.006](https://doi.org/10.1016/j.advensoft.2017.01.006)
- [8] **E. Martínez-Pañeda**, C.F. Niordson, R.P. Gangloff. *Strain gradient plasticity-based modeling of hydrogen environment assisted cracking*. Acta Materialia 117, 321-332 (2016). IF: 9.209, Citations: 124. DOI: [10.1016/j.actamat.2016.07.022](https://doi.org/10.1016/j.actamat.2016.07.022) [**Acta Student Award 2016**]
- [7] **E. Martínez-Pañeda**, I.I. Cuesta, I. Peñuelas, A. Díaz, J.M. Alegre. *Damage modeling in small punch test specimens*. Theoretical and Applied Fracture Mechanics 86A, 51-60 (2016). IF: 4.374, Citations: 35. DOI: [10.1016/j.tafmec.2016.09.002](https://doi.org/10.1016/j.tafmec.2016.09.002)
- [6] **E. Martínez-Pañeda**, C.F. Niordson, L. Bardella. *A finite element framework for distortion gradient plasticity with applications to bending of thin foils*. International Journal of Solids and Structures 96, 288-299 (2016). IF: 3.667; Citations: 53. DOI: [10.1016/j.ijsolstr.2016.06.001](https://doi.org/10.1016/j.ijsolstr.2016.06.001)
- [5] **E. Martínez-Pañeda**, S. del Busto, C.F. Niordson, C. Betegón. *Strain gradient plasticity modeling of hydrogen diffusion to the crack tip*. International Journal of Hydrogen Energy 41, 10265-10274 (2016). IF: 7.139, Citations: 76. DOI: [10.1016/j.ijhydene.2016.05.014](https://doi.org/10.1016/j.ijhydene.2016.05.014)
- [4] **E. Martínez-Pañeda**, T.E. García, C. Rodríguez. *Fracture toughness characterization through notched small punch test specimens*. Materials Science and Engineering A 657, 422-430 (2016). IF: 6.044, Citations: 59. DOI: [10.1016/j.msea.2016.01.077](https://doi.org/10.1016/j.msea.2016.01.077)
- [3] **E. Martínez-Pañeda**, C.F. Niordson. *On fracture in finite strain gradient plasticity*. International Journal of Plasticity 80, 154-167 (2016). IF: 8.500, Citations: 124. DOI: [10.1016/j.ijplas.2015.09.009](https://doi.org/10.1016/j.ijplas.2015.09.009)
- [2] **E. Martínez-Pañeda**, C. Betegón. *Modeling damage and fracture within strain gradient plasticity*. International Journal of Solids and Structures 59, 208-215 (2015). IF: 3.667; Citations: 110. DOI: [10.1016/j.ijsolstr.2015.02.010](https://doi.org/10.1016/j.ijsolstr.2015.02.010)
- [1] **E. Martínez-Pañeda**, R. Gallego. *Numerical analysis of quasi-static fracture in functionally graded materials*. International Journal of Mechanics and Materials in Design 11, 405-424 (2015). IF: 4.011; Citations: 84. DOI: [10.1007/s10999-014-9265-y](https://doi.org/10.1007/s10999-014-9265-y)

BOOKS

- [1] **E. Martínez-Pañeda**. *Strain Gradient Plasticity-Based Modeling of Damage and Fracture*. Springer Theses Series. Springer International Publishing. DOI: [10.1007/978-3-319-63384-8](https://doi.org/10.1007/978-3-319-63384-8) (2018).

BOOK CHAPTERS

[2] **E. Martínez-Pañeda**, Z. Harris. *Chapter 4. New perspective in hydrogen embrittlement or EAC*. In: V.S. Raja, T. Shoji (Eds.), *Stress Corrosion Cracking: Theory and Practice*, 2nd edition. Elsevier (2023). (To be published)

[1] **E. Martínez-Pañeda**. *X-FEM modelling of cracked elastic-plastic solids*. In: S. Bordas, A. Menk, S. Natarajan (Eds.), *Partition of Unity Methods*. Wiley (2023).

OUTREACH PUBLICATIONS

[1] **E. Martínez-Pañeda**. *Tools for predicting hydrogen embrittlement*. IOM3 Materials World magazine 30 (5), pp. 36-40 (2022)

RESEARCH FUNDING

CF-PREDICT . EPSRC Supergen ORE Hub. PI [£100k, 80%FEC]	2024-2025
ResistHfracture . ERC Starting Grant. PI [1.5M€]	2024-2029
UnderstandH . Royce Materials Challenge Accelerator Programme. PI [£100k, 80% FEC]	2022-2023
H-SAFE2 . R&D contract with EPRI. PI [£400k, 100% FEC]	2023-2024
SimHdefect . R&D contract with Shell. PI [£240k, 100% FEC]	2023-2024
HISTORY . Innovate UK, Faraday Battery Challenge Programme. co-I [£8.2M]	2022-2023
VirtualH . R&D contract with TENARIS. PI [£240k, 100% FEC]	2022-2023
H-SAFE . R&D contract with EPRI. PI [£240k, 100% FEC]	2022-2023
NEWPHASE . UKRI Future Leaders Fellowship. PI [£1.5M+£0.5M, 80% FEC]	2021-2025
NextGEM . EPSRC New Investigator Award. PI [£460k, 80% FEC]	2021-2024
NanoHMAT . EPSRC New Horizons Grant (success rate 4%). PI [£200k, 80% FEC]	2021-2023
SINDRI . EPSRC Prosperity Partnerships. co-I [Total: £7.6M; £2.4M EPSRC, £3.4M EDF Energy]	2021-2025
FatigueLife . Innovation Fund Denmark, Vattenfall Vindkraft A/S. Co-PI [300k €]	2020-2023
NewHE , EPSRC DTP CASE Award. PI [£90k]	2019-2022
MicroCrack . Marie Skłodowska-Curie Individual Fellowship. PI (declined)	2019-2021
Reliable assessment in aggressive environments . DHRTC, TOTAL. Co-PI [300k €]	2019-2021
MICROROCK . Royal Commission for the 1851 Exhibition. PI [300k €]	2019-2021
Structural Integrity of Silos . CDTI, TSK. co-PI [250k €]	2018-2021
MicroMETAL . European Union FP7, DTU. co-PI [£171k]	2016-2018

And smaller R&D contracts with ExxonMobil (3DFRACTURE) [PI], EDF [PI], UKAEA [PI], William J Marshall & Partners [PI], ICE Automotive (FUO-EM-361-13) [co-PI], EDP (FUO-EM-279-15) [co-PI], and Arcelor-Mittal (FUO-EM-286-12) [co-PI].

TEACHING EXPERIENCE

- *P3 Structures and Mechanics*. Lecturer 2023 - Present. MEng General Engineering. University of Oxford
- *A3 Structures, Materials and Dynamics*. 2023 - Present. MEng General Engineering. University of Oxford (Tutorials, Worcester and Harris Manchester Colleges)
- *CIVE97144 Metals*. Lecturer and course responsible 2019 - 2023. MSc Advanced Materials for Sustainable Infrastructure. Imperial College London
- *CIVE97147 Numerical Modelling of Materials*. Lecturer and course responsible 2019 - 2023. MSc Advanced Materials for Sustainable Infrastructure. Imperial College London
- *CIVE97142 Mechanics of Materials*. Lecturer and course responsible 2019 - 2021. MSc Advanced Materials for Sustainable Infrastructure. Imperial College London
- *CIVE97141 Material Selection*. Lecturer 2019 - 2020. MSc Advanced Materials for Sustainable Infrastructure. Imperial College London
- *3c9 Fracture Mechanics of Materials & Structures*. Teaching assistant (supervisions) 2017 - 2019. MEng Engineering. University of Cambridge

- *3c7 Mechanics of Solids*. Teaching assistant (supervisions) 2017 - 2019. MEng Engineering. University of Cambridge
- *41528 Plasticity and Creep*. Teaching assistant 2016 - 2017. MSc Engineering Design and Applied Mechanics. Technical University of Denmark
- *41526 Fracture mechanics*. Teaching assistant 2016 - 2017. MSc Engineering Design and Applied Mechanics. Technical University of Denmark
- *Advanced Finite Element Modelling*. Lecturer and course responsible 2014 - 2016. MSc in Integrity and Durability of Materials, Components and Structures. University of Oviedo
- *Theory of Structures and Industrial Constructions*. Teaching assistant 2015 - 2016. BEng in Mechanical Engineering. University of Oviedo
- *Theory of Elasticity and Plasticity*. Lecturer and shared course responsible 2013 - 2014. MSc in Integrity and Durability of Materials, Components and Structures. University of Oviedo

TEACHING PUBLICATIONS

- [1] **E. Martínez-Pañeda**. *MATLAB: A tool for teaching the finite element method*. UNION, Ibero-American Journal of Mathematics Education 45, pp. 242 – 268 (2016). [In Spanish]

POSTDOCS

- [16] Ratul Das, 2024 - Present. Shell SimHdefect grant
 [15] Xuewei Li, 2024 - Present. NEXTGEM grant
 [14] Job Wijnen, 2023 - Present. EPRI HSAFE2 grant
 [13] Dannisa Chalfoun, 2023 - Present. EPRI HSAFE2 grant
 [12] Sara Jimenez Alfaro, 2023 - Present. Iberdrola E4F Fellowship
 [11] Guillermo Alvarez, 2023-Present. Margarita Salas Fellowship
 [10] Chuanjie Cui, 2022-Present. Marie Curie Individual Fellow
 [9] Tushar Mandal, 2022-Present. Royal Society Newton International Fellow
 [8] Livia Cupertino-Malheiros, 2022-2023. [currently: Lecturer (US Assist. Prof.) at Imperial College London]
 [7] Sasa Kovacevic, 2021-Present. NEWPHASE grant
 [6] Adria Quintanas-Corominas, 2022-2023. Margarita Salas Fellow [currently: Senior Research Scientist, BSC]
 [5] Andres Montoya, 2022-Present. Margarita Salas Fellowship
 [4] Tim Hageman, 2021-2023. 1851 Research Fellow [currently: Dept. Lecturer (US Assist. Prof.) at Oxford]
 [3] Sergio Lucarini, 2021-Present. Marie Curie Individual Fellow
 [2] Alfredo Zafra, 2021-Present. NanoHMAT grant
 [1] Enrique García-Macías, 2019-2020. ICL Research Fellow [currently: Asst. Prof., University of Granada]

PHD STUDENTS

- [20] Sebastian Luza, 2023 - Present. *Li-Ion battery degradation*. University of Oxford
 [19] Lorenzo Chiaverini, 2022 - Present. *Micromechanics of new low-carbon cements*. Imperial College
 [18] Ruizhi Chai, 2022 - Present. *Critical experiments to unravel localised corrosion*. Imperial College
 [17] Sangchu Quan, 2022 - Present. *Hydrogen embrittlement testing and understanding*. Imperial College
 [16] Lucas Castro, 2022 - Present. *Structural integrity of welded components exposed to hydrogen*. University of Oviedo
 [15] Maciej Makuch, 2021 - Present. *Phase field modelling of corrosion damage*. Imperial College
 [14] Leonel Quinteros, 2020 - Present. *Smart skins for identifying localised damage in engineering structures*. Imperial College
 [13] Yang Tu, 2020 - Present. *Multi-physics fracture modelling*. Imperial College
 [12] Theo Clayton, 2020 - Present. *Advanced fracture mechanics modelling to understand earth-environment interactions*. Imperial College
 [11] Evzen Korec, 2020 - Present. *Electro-chemo-mechanical models for predicting stress corrosion cracking*. Imperial College
 [10] Alain Islas, 2020 - Present. *CFD modelling of dust explosions*. University of Oviedo

- [9] Runzi Wang, 2020 - Present. *Phase field modelling of solid state batteries*. Imperial College
- [8] Yousef Navidtehrani, 2020 - Present. *Micromechanics of rock fracture*. University of Oviedo
- [7] Alireza Golahmar, 2020 - Present. *Development and application of phase field models for fracture mechanics-based assessment of fatigue life of offshore wind structures in a corrosive environment*. Technical University of Denmark
- [6] Mehrdad Isfandbod, 2019 - Present. *Hydrogen embrittlement of austenitic stainless steels*. Imperial College
- [5] Philip K. Kristensen, 2019 - 2023. *Damage modeling in aggressive environments*. Technical University of Denmark
- [4] Rebeca Fernández Sousa, 2019 - Present. *Hydrogen resistant steels*. University of Oviedo
- [3] Ingrid Holte, 2018 - 2021. *Advanced damage models with intrinsic size effects*. Technical University of Denmark (currently: Research Engineer @ LM Wind Power)
- [2] Sandra Fuentes-Alonso, 2016-2020. *Numerical modelling of brittle fracture in metallic materials*. University of Oviedo [*Summa Cum Laude*] (currently: Senior Engineer @ TSK)
- [1] Susana del Busto, 2014-2017. *Numerical analysis of hydrogen embrittlement through cohesive zone models*. University of Oviedo [*Summa Cum Laude*] (currently: Technical College Lecturer and PDRA @ Univ. of Oviedo)

GUEST PHD STUDENTS

- [3] Danhui Yang (Xi'an Jiaotong University), 09/2020-10/2022.
- [2] Chuanjie Cui (Tongji University), 09/2020-05/2022.
- [1] Guillermo Álvarez (University of Oviedo), 09/2020-03/2021.

MENG/MSC STUDENTS (TOTAL OF 32)

- 2023** - Abin Rai; Vishal Muthiah; Zhongche Shen; Haoyu Zhang; Jierui Chen; Rongrui Li; Sophie Elliott.
- 2022** - Lucas Castro; Javier Sanchez-Fernandez; Chenyue Du; Steven Liu; Julian Romero-Perez; Qiuyi Shi; Jiahang Yu.
- 2021** - Yanan Su; Mubin Al-Manaf Sharifuddin; Chao Sun; Mohamed Mohamud; Chen Nie; Elizabeth Smith.
- 2020** - Jialin Wu; Yong Jie Neo; Jiahua Fang; Rabaa Al-Manji; Xinyue Yu; Robert G. Drummond.
- 2019** - Alireza Golahmar
- 2018** - Philip Kræn Andersen
- 2016** - Juan Carlos Nieto-Fuentes
- 2015** - Miguel Varela Cuervas-Mons
- 2014** - Arantzazu Fernández; Susana del Busto.

PHD EVALUATION COMMITTEES

- [10] Chao Tan. University of St Andrews (2023)
- [9] Edel Martinez. University of British Columbia (UBC) (2022)
- [8] Abhinav Gupta. IIT Roorkee (2022)
- [7] Huixing Li. University of Queensland (2022)
- [6] Pavan Kumar Asur Vijaya Kumar. IMT Lucca (2022)
- [5] Tushar Mandal. Monash University (2021)
- [4] Shruti Rastogi. Columbia University (2021)
- [3] Carmen Covadonga García Fernández. University of Oviedo (2019)
- [2] Andrés Díaz. University of Burgos (2017)
- [1] Daniel Rodríguez Galán. Madrid Polytechnic (UPM), IMDEA Materials (2017)

VISITING POSITIONS

- | | |
|---|----------------|
| Academic guest, Technical University of Denmark | 2017 - Present |
| Visiting Academic Fellow, University of Cambridge | 2019 - 2021 |
| Academic guest, University of California Santa Barbara | 2016 |

EDITORIAL BOARDS AND REVIEWING ACTIVITIES

2023 - Present, Section Editor - Corrosion & Additive Manufacturing, *Materials Today Communications* (Elsevier)
2023 - Present, Grant reviewer and panel member for Switzerland's National Science Foundation (SNSF).
2023 - Present, Panel and grant reviewer for Denmark's Fund for Independent Research (DFF)
2023 - Present, Early Career Advisory Board, *Extreme Mechanics Letters* (Elsevier)
2023 - Present, Editorial Board, *Journal of the Mechanical Behavior of Materials* (De Gruyter)
2022 - Present, Editorial Board, *Engineering Fracture Mechanics* (Elsevier)
2022 - Present, Editorial Board, *International Journal of Structural Integrity* (Emerald)
2022 - Invited as external expert to the selection committee of an Associate Professor at the Technical University of Denmark (DTU).
2021 - Present, Grant reviewer for Singapore's Agency for Science, Technology and Research
2021 - Present, Grant reviewer for the French National Research Agency (ANR).
2020 - Present, Editorial Board, *Applications in Engineering Science* (Elsevier)
2020 - Present, Grant reviewer for Poland's National Science Centre
2020 - Present, EPSRC College of expert (grant) reviewers
2019 - Present, Editorial Board, *Springer Nature (SN) Applied Sciences* (SNAS)
2019 - Present, Grant reviewer for the Science Fund of the Republic of Serbia
2018 - Present, Grant reviewer for the British Council (Newton Fund)
2017 - Present, Grant reviewer for the Spanish State Research Agency
Reviewer for more than 20 journals (Science, JMPS, CMAME, EJM/S, IJP, EFM, etc.)

MEMBERSHIP AND PROFESSIONAL AFFILIATIONS

2022 - Present, Royal Society panel for IUTAM
2021 - Present, EPSRC Early Career Forum
2021 - Present, RILEM
2021 - Present, UK's representative in the Young Investigator Committee of ECCOMAS
2021 - Present, IOM3 - The Institute of Materials, Minerals & Mining (Fellow, FIMMM)
2019 - Present, UK Association for Computational Mechanics (UKACM); Executive Committee Member 2020 -
2019 - Present, UK Forum for Engineering Structural Integrity (FESI)
2019 - Present, Spanish Society of Theoretical and Applied Mechanics (SEMTA)
2017 - Present, Invited member of RILEM's CCH: Stress Corrosion Cracking and Hydrogen Embrittlement of Concrete-Reinforcing Steels Committee.
2015 - Present, European Mechanics Society (EUROMECH)
2013 - Present, European Structural Integrity Society (ESIS)
2013 - Present, Spanish Group of Fracture (GEF)
2012 - Present, European Community on Computational Methods in Applied Sciences (ECCOMAS)
2012 - Present, International Association for Computational Mechanics (IACM)
2012 - Present, Spanish Society for Numerical Methods in Engineering (SEMNI)

SELECTED CONFERENCE TALKS

2024 ECCOMAS 2024 Congress. Lisbon (Portugal) [Semi-Plenary talk] (to be held)
2024 5th International Symposium on Phase-Field Modelling in Materials Science. Hangzhou (China) [Plenary talk] (to be held)
2023 3rd Phase Field & Related Methods conference. Hefei (China) [Plenary talk]
2023 International Hydrogen Conference 2023. Park City (USA) [Keynote talk]
2023 9th Conference on the Mechanical Response of Composites. Trapani (Italy) [Plenary talk]
2023 EUROCORR2023. Brussels (Belgium)
2023 15th International Conference on Fracture. Atlanta (USA) [Keynote talk]
2023 17th International Conference on Engineering Structural Integrity Assessment & 2023 International Symposium on Structural Integrity. Manchester (UK) [Keynote talk]
2023 XXXIX Congress of the Spanish Group of Fracture. Gijón (Spain) [Plenary talk]

2022 4th International Conference on Metals and Hydrogen. Ghent (Belgium) [Plenary/Keynote talk]
2022 42nd Solid Mechanics Conference (SOLMECH2022). Swinoujscie, Poland [Keynote talk]
2022 EUROMECH Mechanics for Energy Storage Colloquium. Lake Garda (Italy) [by invitation only]
2022 European Solid Mechanics Conference (ESMC2022). Galway (Ireland)
2022 European Conference on Fracture (ECF23). Madeira (Portugal) [Invited talk TC10B / H embrittlement]
2022 ECCOMAS 2022. Oslo (Norway) [Invited talk MS159]
2022 18th European Mechanics of Materials Conference (EMMC18). Oxford (UK) [Invited talk S9]
2022 2022 Annual Conference of the UK Association for Computational Mechanics. Nottingham (UK) [Plenary talk]
2021 NEWFRAC Workshop: New Strategies in Computational Fracture Mechanics. Seville (Spain) [Plenary/Keynote talk].
2021 Royal Society meeting: “A cracking approach to inventing tough new materials: fracture stranger than friction”. (Online) [participation by invitation only]
2021 75th RILEM Annual Week. Mérida (Mexico) [Plenary talk].
2021 2nd International Workshop on Plasticity, Damage and Fracture of Engineering Materials. Ankara (Turkey) [Plenary/Keynote talk].
2021 XVI International Conference on Computational Plasticity. Barcelona (Spain)
2021 IUTAM Symposium on Generalised Continua. Paris (France) [participation by invitation only]
2019 XV International Conference on Computational Plasticity. Barcelona (Spain)
2019 The Mathematics of Finite Elements and Applications (MAFELAP). Uxbridge (UK)
2019 UK Association for Computational Mechanics Conference. London (UK)
2019 TMS 2019 Annual Meeting & Exhibition. San Antonio (USA)
2018 BP-ICAM Annual Conference. Manchester (UK)
2018 EUROMECH Colloquium *Micromechanics of defects*. Seville (Spain) [participation by invitation only]
2018 IUTAM Symposium on Size-Effects. Copenhagen (Denmark) [participation by invitation only]
2017 30th Nordic Seminar on Computational Mechanics. Copenhagen (Denmark)
2017 XIV International Conference on Computational Plasticity. Barcelona (Spain)
2017 Intl. Sym. on Multiscale Compt. Anal. of Complex Mat. [participation by invitation only]
2017 14th International Conference on Fracture. Rhodes (Greece) [invited talk Sym. Hydrogen]
2017 7th International Conference on Mechanics and Materials in Design. Albufeira (Portugal)
2016 International Hydrogen Conference. Jackson Lake (USA)
2016 24th Intl. Cong. of Theoretical and Applied Mech. Montreal (Canada) [invited talk SM10]
2016 VII ECCOMAS Congress. Crete Island (Greece) [invited talk Mini-Symposium 201]
2015 SIPS2015 – Aifantis International Symposium. Antalya (Turkey) [Invited Talk]
2015 XIII International Conference on Computational Plasticity. Barcelona (Spain)
2015 9th European Solid Mechanics Conference (ESMC 2015). Madrid (Spain)
2015 12th International Conf. on the Mechanical Behavior of Materials. Karlsruhe (Germany)
2014 11th World Congress on Computational Mechanics (WCCM XI). Barcelona (Spain)
2014 IUTAM 2014 Symposium: micromechanics of defects in solids. Seville (Spain)
2013 4th International Conference on Integrity, Reliability & Failure. Madeira (Portugal)
2012 IUTAM 2012 Symposium: fracture phenomena in nature and technology. Brescia (Italy)

ORGANISATION OF CONFERENCES, WORKSHOPS, SYMPOSIA

2025 ICTAM Symposium on Chemo-mechanical fracture and material degradation. Chair.
2025 UKACM 2025 Conference. Co-chair.
2024 Oxford-EPRI Workshop in Hydrogen Embrittlement. Chair.
2024 ICTAM2024, Thematic Session on Computational Solid Mechanics. Co-chair.
2024 Symposium on *Fracture and Damage* (European Mechanics of Materials Conference, EMMC19). Co-organizer.
2024 ECCOMAS 2024 Congress. Member of the Congress Scientific Committee.
2024 Fatigue 2024 Congress. Member of the Local Technical Committee.
2023 ECCOMAS 7th Young Investigators Conference. Member of the Congress Scientific Committee.
2023 3rd International Workshop on Plasticity, Damage and Fracture of Engineering Materials. Co-chair.

2023 Invited Minisymposia *Models for Plasticity, Fracture and Interfacial Problems* (COMPLAS 2023 Conference). Co-organizer & member of the Congress Scientific Committee.

2023 Invited Session *Computational modeling for hydrogen technologies* (COUPLED 2023 Conference). Co-organizer

2021 Invited Session *Size effects in plasticity and fracture* (COMPLAS 2021 Conference). Co-organizer & member of the Congress Scientific Committee.

2020 Symposium on *Fracture and Damage* (European Mechanics of Materials Conference, EMMC17). Co-organizer. [Cancelled due to the pandemic]

2020 Mini-Symposium on *Deformation, failure and coupled processes in porous media* (ASCE EMI Conference). Co-organizer. [Cancelled due to the pandemic]

2019 Invited Session *Length scales in Plasticity and Fracture* (COMPLAS 2019 Conference). Co-organizer & member of the Congress Scientific Committee.

2019 1st International Workshop on Plasticity, Damage and Fracture (Ankara, Turkey). Scientific Committee

2019 XIX International Colloquium on Mechanical Fatigue of Metals (ICMFM XIX, 2019). International Scientific Committee.

2017 30th Nordic Seminar on Computational Mechanics. Local Organizing Committee.

2017 Invited Session *Size-effects in Metal Plasticity* (COMPLAS 2017 Conference). Co-organizer & member of the Congress Scientific Committee.

2016 SIPS 2016: Yang International Symposium on Multiscale Material Mechanics and Multiphysics. International Scientific Committee.

2016 XVIII International Colloquium: Mechanical Fatigue of Metals (ICMFM XVIII). Local Organization Committee.