

José Javier Muñoz Romero

Curriculum Vitae, 10/10/2019

SUMMARY

I have a strong background in **mathematical modelling** and **computational mechanics**: finite element techniques, particle methods, and optimisation approaches for non-linear elastodynamics, contact mechanics, and plasticity.

During the last 10 years I have applied these techniques to simulate complex problems in **biomechanics**: embryo development, tissue self-organisation, and rheological laws for multicellular systems that exhibit dual behaviour: active/passive and solid/fluid, at the cellular and tissue level.

I have maintained a close collaboration with laboratories studying embryo development and tissue mechanics. This has allowed me to gain deep knowledge of their needs and the possibilities of their experimental techniques. I have designed **specific computational approaches** in order to confirm/discard mechanical hypotheses and assumptions, and also predict tissue mechanical response.

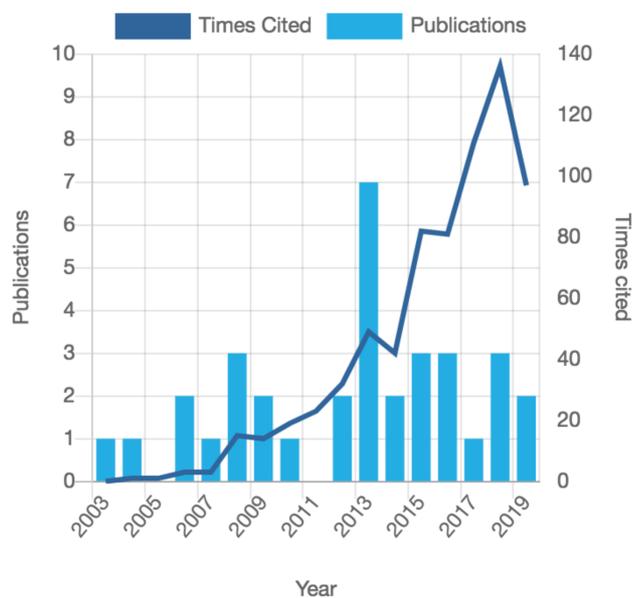
REFERENCES AND GLOBAL INFORMATION

<http://www.lacan.upc.edu/munoz>

ResearcherID: B-2475-2009

ORCID: <http://orcid.org/0000-0002-0083-3673>

h-index: 11, 321 citations., (Wos, Scopus), 16 (Google Sholar)



EDUCATION

2004	PhD. Dept. Aeronautics, Imperial College London, United Kingdom.
1998	Master in Civil Engineering, École Centrale Paris, France Master in Mechanical Engineering, Universitat Politècnica de Catalunya, Spain (Erasmus Mundus double degree)

CURRENT AND PREVIOUS POSITION(S)

2011 –	Associate Professor. Dept. Appl. Mathematics III, Universitat Politècnica de Catalunya, (UPC), Spain.
2008 – 2011	Lecturer. Dept. Appl. Mathematics III, Universitat Politècnica de Catalunya, Spain.
2005 – 2008	Post-doctoral researcher, Juan de la Cierva fellowship. Dept. Appl. Math. III, UPC, Spain.
2004 – 2005	Post-doctoral researcher. Div. Engin., King's College London, United Kingdom.
2004	Post-doctoral researcher. Dept. Aeronautics. Imperial College London, United Kingdom.

FELLOWSHIPS AND AWARDS

2017–	Salvador de Madariaga fellowship. Spanish Ministry of Science and Universities.
2013–	Jose´Castillejos fellowship. Spanish Ministry of Science and Universities.
2005 – 2008	Juan de la Cierva post-doctoral fellowship (1 st ranked). Universitat Politècnica de Catalunya.
2005 – 2007	CE post-doctoral fellowship. Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE). Declined.
2013	BE grant from Spanish Agency for Management of University and Research Grants (AGAUR). 3 months sabbatical period in University of Newcastle, Australia.
2008	José Castillejos grant for 4 months sabbatical period in Ecole Centrale Paris, France.
2006	BE grant from Spanish Agency for Management of University and Research Grants (AGAUR). 3 months sabbatical period at Massachusetts Institute of Technology, US.
1991 – 1992	Erasmus Mundus scholarship. École Centrale Paris, France.

TEACHING ACTIVITIES

Universitat Politècnica de Catalunya, Spain, 2008- :

- Master in Civil Eng.: Finite Element, Computational Mechanics, Numerical Methods, Applications in Computational Engineering.
- Master of Sc. in Computational Mechanics (Erasmus+): Computational Mechanics Tools, Basic and Advanced Programming.
- Degree in Math.: Finite Elements, Numerical Methods in Engineering, Computational Mechanics.
- Master in Geological Engineering: Finite Elements
- Master in Aerospace Sc. and Tech.: Numerical Methods for Systems of Aerospace Engineering.

Imperial College London, 2003: Vibration analysis.

Science dissemination: Plus Magazine, MPS seminars at Lycée Français Barcelona (2016)

ORGANISATION OF SCIENTIFIC MEETINGS

2018	World Congress in Computational Mechanics (Barcelona, 2014). Minisymposia organiser on “cell and tissue mechanics”.
2015	Local organiser of the ECCOMAS conference in Multibody System Dynamics 2015, Spain.
2014	World Congress in Computational Mechanics (Barcelona, 2014). Minisymposia: MS1: Direct Methods and Constitutive Modeling for Plastic Design by Analysis MS2: Mechanobiology of cellular systems
2012	EvoBCN. Organiser of annual meeting. Main organiser, at Escola Universitària d’Enginyeria Tècnica Industrial de Barelona (EUETIB), Spain.

INSTITUTIONAL RESPONSIBILITIES AND SUPERVISION

2017 -	Member of Academic Commission of Applied Mathematics Doctorate and Master in Advanced Mathematics and Mathematical Engineering (“Comissió acadèmica del Doctorat en Matemàtica Aplicada i el Màster in Advanced Mathematics and Mathematical Engineering”)
2013 – 2016	Responsible of subject Computational Mechanics, Universitat Politècnica de Catalunya.
2013 – 2015	Coordinator of Erasmus Mundus Joint Doctorate “Simulation in Engineering and Entrepreneurship Development”, with a consortium of 8 European Universities.
2009 –	Supervisor of 9 graduate students and 13 master theses:

13. David Doste. Simulation of worm locomotion control. UPC, 2020.
12. Malik A Dawi. Inverse analysis of hybrid cell-centered/Vertex model . UPC, 2018.
11. Fèlix Lauwaert. Inverse mechanical analysis for biological tissues. UPC, 2016.
10. Ben Newman. Computational limit analysis of three-dimensional tunnels. Erasmus Master Thesis. Sheffield University, (United Kingdom) /UPC. June 2013.
9. François Dailloux. Computational limit analysis of shallow and deep anchors. Erasmus Master Thesis. Ecole des Ponts et Chaussées (Paris, France) /UPC. Sept 2012.
8. Hannah Dawson. Finite Element Adaptive Limiting Analysis: A Comparison and Compilation of Software. Erasmus Master Thesis. Sheffield University (UK)/UPC. July 2012.
7. Alberto Sibileau. Conserving Time-Integration of Beams under Contact Constraints using B-Spline interpolation. Erasmus Mundus Master in Computational Mechanics, 2011.
6. Marc Estrem Masip. Time integration algorithms for conservative particle systems with constraints. 2011.
5. Duc Nguyen. The drucker-prager criterion in adaptive limit analysis. Civil Engineering, 2011 (joint Erasmus Mundus with Sheffield University)
4. Daniel Codorniu Cobo. Análisis del impacto de pájaros en perfiles alares en materiales compuestos en fibra de carbono. Civil Engineering, 2010.
3. Colomé Gené, Josep Oriol. Análisis del daño en problemas de impacto. Civil Engineering, 2010.
2. Sukumaran, Sujith. Computational Modeling of Damage phenomenon in Composite Materials. Erasmus Mundus Master in Computational Mechanics, 2010.

1. Jue Tao. Using Mechanics to Understand How Construction Mechanisms Work in Biological Organisms. King's College London, 2005 (awarded best MSc thesis of the year).

2009 - Supervision of 5 PhD theses

5. Filippou Ionou (cosupervision with Yanlan Mao). University College London. To be defended. Expected date: 11/2019
4. Payman Mosaffa. Universitat Politècnica de Catalunya. Defended in 11/2017.
3. Nina Asadipour. Universitat Politècnica de Catalunya. Defended 3/2016.
2. Nima Rabiei. Universitat Politècnica de Catalunya. Defended 10/2014.
1. Vito Conte (cosupervision with Mark Miodownik). King's College London. Defended 3/2009.

2009 – Member of the jury in 22 Master theses and in 11 PhD theses (France, United Kingdom and Spain):

11. V Petrolli. Confinement induced transition between wave-like migration modes. Universitat Grenoble Alpes, France. 11/2019. Director G. Cappello.
10. P Rodríguez Franco. Mechanics of boundary formation in epithelial monolayers by eph-ephrin interactions. Universitat de Barcelona, Spain. 1/2017. Director X. Trepat.
9. S Conde. Energy-Entropy-Momentum Time Integration Methods for Coupled Smooth Dissipative Problems. Director: JC García Orden, 2016.
8. Carlos Eduardo Ruiz. A computational study of intervertebral disc degeneration in relation to changes in regional tissue composition disc nutrition. Supervisor: J. Noailly. UPC, 2015.
7. C. Peco. Title: approximation of phase-field models with meshfree methods: exploring biomembrane dynamics. Universitat Politècnica de Catalunya, Oct. 2014.
6. B Driquez. Title: Mecanotransductional regulation of mesoderm and posterior endoderm invaginations in Drosophila embryo. Institute Marie Curie, Paris, France. Director: Emmanuelle Farge. Date: 10/10/2013.
5. R Ortega. Title: Tratamiento Consistente de Restricciones e Impacto en Dinámica de Sistemas Multicuerpo. Universidad Politécnica de Madrid, Director: Juan C García-Orden. Date: 31/05/2013.
4. S Hawksbee. 3D Ultimate Limit State Analysis using Discontinuity Layout Optimization. Sheffield University, United Kingdom, Jan 2013
3. Millán D. Point-set Manifold Processing for Computational Mechanics: thin shells, reduced order modeling, cell motility and molecular conformations. Universitat Politècnica de Catalunya, Spain, Nov. 2012
2. M Rahimi. Shape dynamics and lipid hydrodynamics of bilayer membranes: modeling, simulation and experiments. Director: Marino Arroyo. Date: 9/4/2013.
1. Allena, R. Numerical simulation of morphogenetic movements in Drosophila embryo. École Centrale Paris, France, Sept. 2009

COMMISSIONS OF TRUST

- 2015- Editorial Board of Mathematical Problems in Engineering.
 2013- Reviewer for research projects of: Reserach Foudnation Flanders (FWO, 2018),

- Romanian National Council for Research and Development (2014-17, 2019), Israel Science Foundation (2017), Croatian Science Foundation (2016), Institut des systèmes complexes de Paris (2014), Agencia Valenciana D'Avaluació I Prospectiva (AVAP, 2018), Comisión Nacional de Investigación Científica y Tecnológica de Chile (CONICYT, 2018).
- 2015 Review Panel member of La Caixa Master grants, Spain.
- 2013 Scientific Advisory Board of the Spanish Committee of the European Society of Biomechanics.
- 2003 – Reviewer of more than 40 indexed international journals. Among them:
- Int. J Num. Meth. Eng.
 - Comp. Meth. Appl. Mech. Engin.
 - Bioph. J. / Biomech./ Biomech. Mod. Mechanobiology
 - .Int. J. Solids. Structures
 - Comp. Meth. Biomech. Biomed. Eng
 - Plos ONE
 - Plos Comp. Biology.
 - Acta Mechanica.
 - Computers & Structures
 - Computers & Geotechnics

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2015 Participant in the Spanish Network of Excellence on Mechanobiology
- 2012 – Member of Spanish Society of Numerical Methods in Engineering (SEMNI).
- 2012 – Member of European Community on Computational Methods in Applied Sciences (ECCOMAS)
- 2012 DEV-BCN: Group of researchers located in Barcelona specialised on the modelling of embryo development.
- 2011 Research Group on Direct Methods in Limit Analysis (<http://shakedown.iam.rwth-aachen.de/>)
- 2010 Embryophysics group: international group of physicians/engineers/biologists specialised on modelling and experimental analysis of embryo development.

VISITING LECTURER AND HOSTING OF RESEARCHERS/PhDs

Visiting lecturer at:

- University of Madison/Wisconsin, USA. 2016
- University College London, Great Britain. 2012, 2015
- University of Newcastle, Australia. 2013.
- École Centrale Paris, France. 2009.
- King's College London. 2009.
- Università degli Studi Roma Tre, Italy, 2008.

Recent hosting of researchers/PhD students:

- Filippou Ioannou (PhD student, University College London, 2016)
- Nargess Khalilgharibi (PhD student, University College London, 2015)
- Melda Tozluoglu (post-doctorate researcher, University College London, 2015)
- Andrei Lyamin, Assoc. Professor. University of Newcastle, Australia (2015)

- Vito Conte (post-doctorate researcher, Institut de Bioenginyeria de Catalunya, 2012-)
- Msc students: 3 Msc. Students (Sheffield University, 2013, Ecole Centrale Paris, 2012, 2015, 2016)

MAJOR ONGOING EXTERNAL COLLABORATIONS

- E Martín Blanco, Institution of Molecular Biology of Barcelona (IBMB), Spain.
- Timothy Saunders, Mechanobiology Institute, Singapore.
- X Trepát and V Conte, laboratory of Integrative Cell and Tissue Dynamics, Institut de Bioenginyeria de Catalunya (IBEC), Spain.
- Andrea Malandrino, Roger Kamm. Dept. Mechanical Engineering, MIT (USA) and IBEC (Spain)
- G Charras, London Center for Nanotechnology, University College London, United Kingdom. Co-supervision of PhD Nargess Khalilgharibi.
- M Miodownik, University College London, United Kingdom.
- Y Mao and Melda Tozluoglu, Tissue Mechanics Lab. University College London, United Kingdom (PhD co-supervision).
- J Solon. Lab. Biomechanics of Morphogenesis. Centre de Regulació Genòmica, Barcelona, Spain.
- A Lyamin, Scott Sloan and James P Hambleton, University of Newcastle, Australia
- C Smith and M Gilbert. Geotechnical Engineering Group, Dept. Civil & Struct. Engin, Sheffield University, United Kingdom.

PUBLICATIONS

Published Articles:

- [33] M. Tozluoglu, M. Duda, N.J. Kirkland, R. Barrientos, J.J. Burden, **J.J. Muñoz**, Y. Mao. “Planar differential growth rates initiate precise fold positions in complex epithelia”. *Dev. Cell*. On line.
- [32] N. Khalilgharibi, J. Fouchard, N. Asadipour, R. Barrientos, M Duda, A. Bonfanti, A. Yonis, A. Harris, P. Mosaffa, Y. Fujita, A. Kabla, Y. Mao, B. Baum, **J.J. Muñoz**, M. Miodownik, G. Charras. “Stress relaxation in epithelial monolayers is controlled by the actomyosin cortex”. *Nature Physics*, . 15: 839–847, 2019.
- [31] L. Roldán, **J.J. Muñoz**, P. Sáez. “Computational modeling of epithelial wound healing: Short and long term chemo-mechanical mechanisms”. *Computer Methods in Applied Mechanics and Engineering*. 350:28-56, 2019.
- [30] **J.J. Muñoz**, M. Dingle, M. Wenzel. “Mechanical oscillations in biological tissues as a result of delayed rest-length changes”. *Physical Review E*, 98, 052409.
- [29] **J.J. Muñoz**, D. Amat, V. Conte. “Computation of forces from deformed visco-elastic biological tissues”. *Inverse Problems*, 34(4), 044001, 2018.
- [28] P. Mosaffa, A. Rodríguez-Ferran and **J.J. Muñoz**. “Hybrid cell-centred/vertex model for multicellular systems with equilibrium-preserving remodelling”. *International Journal of Numerical Methods for Biomedical Engineering*. . 34(3):1-24, e2928, 2018.
- [27] Sunyer, R.; Conte, V.; Escribano, J.; Elosegui-Artola, A.; Labernadie, A.; Valon, L.; Navajas, D.; García-Aznar, J.M.; **Muñoz, J. J.**; Roca-Cusachs P.; Trepát, X. Collective cell durotaxis emerges from long-range intercellular force transmission. *Science*, 353(6304): 1157-1161, 2016.
- [26] Asadipour, N.;Trepát, X.; **Muñoz**, J.J. Porous-based rheological model for tissue fluidisation. *J. Mech. Phys. Solids*. 96:535-549, 2016. Times Cited=0. Q1. IF=3.875

- [25] **Muñoz**, J.J. Non-regularised Inverse Finite Element Analysis for 3D Traction Force Microscopy. *Int. J. Num. Anal. Mod.* 13 (5): 763-781, 2016. Times Cited=0. Q2. IF=0.844
- [24] Rabiei, N.; **Muñoz**, J. J. AAR-based decomposition algorithm for non-linear convex optimization. *Comp. Optim. Appl.* 62(3): 761-786, 2015. Times Cited: 0. Q1. 1.444.
- [23] Mosaffa, P.; Asadipour, N.; Millán, D.; Rodríguez-Ferran, A.; **Muñoz**, J.J. Cell-centred model for the simulation of curved cellular monolayers. *Comp. Part. Mech.* 2(4): 359-370, 2015. Times Cited: 1.
- [22] **Muñoz**, J.J.; Rabiei, N. AAR-based decomposition method for lower bound limit analysis. *ICE – Eng. Comp. Mech.* 168(4): 169–177, 2015.
- [21] Bazellieres, Elsa; Conte, Vito; Elosegui-Artola, Alberto; Serra-Picamal, X.; Bintanel-Morcillo, M.; Roca-Cusachs, P.; **Muñoz**, J.J.; Sales-Pardo, M.; Guimerà, M.; Trepas, X. Control of cell-cell forces and collective cell dynamics by the intercellular adhesion. *Nature Cell Biology*, 17(4): 409-420, 2015. Times Cited: 28. Q1. IF=18.699.
- [20] Serra-Picamal, X.; Conte, V.; Sunyer, R.; **Muñoz**, J.J.; Trepas, X. Mapping forces and kinematics during collective cell migration. *Meth. Cell Biology*. 125: 309-330, 2015. Times Cited: 2. Q4. IF=1.097
- [19] Brugués, A.; Anon, E.; Conte, V.; Veldhuis, J.H.; Gupta, M.; Colombelli, M.J.; **Muñoz**, J.J., Brodland, G.W.; Ladoux, B.; Trepas, X. Forces driving epithelial wound healing. *Nature Physics*. 10(9): 684-691, 2014. Times Cited: 30. Q1. 2.876.
- [18] **Muñoz**, J.J.; Albo, S. Physiology-based model of cell viscoelasticity. *Phys. Rev. E* 88(1): 0112708, 2013. Times Cited: 1. Q1. IF=2.252
- [17] **Muñoz**, J. J.; Lyamin, A. V.; Huerta, A. Stability of anchored sheet wall in cohesive-frictional soils by FE limit analysis. *Int. J. Num. Anal. Meth. Geom.* 37(9): 1213-1230, 2013. Times Cited: 1. Q2. IF=1.758
- [16] **Muñoz**, J. J.; Conte, V.; Asadipour, N.; Miodownik, M. A truss element for modelling reversible softening in living tissues. *Mech. Res. Commun.* 49: 44-49, 2013. Times Cited: 2. Q2. IF=1.400
- [15] Curiel-Sosa, J. L.; Phaneendra, S.; **Muñoz**, J. J. Modelling of mixed damage on fibre reinforced composite laminates subjected to low velocity impact. *Int. J. Dam. Mech.* 22(3): 356-374, 2013. Times Cited: 1. Q2. IF=1.362.
- [14] Allena, R.; **Muñoz**, J. J.; Aubry, D. Diffusion-reaction model for Drosophila embryo development. *Comp. Meth. Biomech. Biomed. Engin.* 16(3): 235-248, 2013. Times Cited: 4. Q2. IF=1.850.
- [13] Conte, V.; Ulrich, F.; Baum, B.; **Muñoz**, J.J.; Veldhuis, J.; Brodland, W.; Miodownik, M. A Biomechanical Analysis of Ventral Furrow Formation in the Drosophila Melanogaster Embryo. *Plos One* Volume: 7 Issue: 4 Published: 2012. Times Cited: 13. Q1. IF=3.057.
- [12] **Muñoz**, J. J.; Huerta, A.; Bonet, J.; Peraire, J. A note on upper bound formulations in limit analysis. *Int. J. Num. Meth. Engin.* 91(8): 896-908, 2012. Times Cited: 4. Q1. 2.100
- [11] **Muñoz**, J. J.; Conte, V.; Miodownik, M. Stress-dependent morphogenesis: continuum mechanics and truss systems. *Biomechanics and Modeling in Mechanobiology* Volume: 9 Issue: 4 Pages: 451-467, 2010. Times Cited: 10. Q1. IF=3.032.
- [10] Conte, V; **Muñoz**, JJ; Baum, B; Miodownik, M. Robust mechanisms of ventral furrow invagination require the combination of cellular shape changes. *Phys. Biol.* 6(1), 2009. Times Cited: 28. Q3. IF=1.837
- [9] **Muñoz**, J. J.; Bonet, J.; Huerta, A.; Peraire, J. Upper and lower bounds in limit analysis: Adaptive meshing strategies and discontinuous loading. *Int. J. Num. Meth. Eng.* 77(4): 471-501, 2009. Times Cited: 28. Q1. IF=2.100
- [8] Conte, V.; **Muñoz**, J. J.; Miodownik, M. A 3D finite element model of ventral furrow invagination in the Drosophila melanogaster embryo. *J. Mech. Behav. Biomed. Mater.* 1(2): 188-198, 2008. Times Cited: 28. Q1. IF=2.876.

- [7] **Muñoz, J. J.** Modelling unilateral frictionless contact using the null-space method and cubic B-Spline interpolation. *Comp. Meth. Appl. Mech. Engin.* 197(9-12): 979-993, 2008. Times Cited: 13. Q1. IF=3.467.
- [6] **Muñoz, J. J.** On the modelling of incompressibility in linear and non-linear elasticity with the master-slave approach. *Int. J. Num. Meth. Eng.* 74(2): 269-293, 2008. Times Cited: 0. Q1. IF=2.100
- [5] **Muñoz, J. J.**; Barrett, K.; Miodownik, M. A deformation gradient decomposition method for the analysis of the mechanics of morphogenesis. *J. Biomech.* 40(6): 1372-1380, 2007. Times Cited: 38. Q2. IF=2.431.
- [4] **Muñoz, J. J.**; Jelenic, G. Sliding contact conditions using the master-slave approach with application on geometrically non-linear beams. *Int. J. Solids and Struct.* 41(24-25): 6963-6992, 2004. Times Cited: 11. Q1. IF=2.081
- [3] **Muñoz, J. J.**; Galvanetto, U.; Robinson, P. On the numerical simulation of fatigue driven delamination with interface elements. *Int. J. Fatigue*, 28(10): 1136-1146, 2006. Times Cited: 35. Q1. IF=2.162.
- [2] **Muñoz, J. J.**; Jelenic, G. Sliding joints in 3D beams: Conserving algorithms using the master-slave approach. *Mult. Sys. Dyn.* 16(3): 237-261, 2006. Times Cited: 5. Q2. 1.389
- [1] **Muñoz, J.**; Jelenic, G.; Crisfield, M. A. Master-slave approach for the modelling of joints with dependent degrees of freedom in flexible mechanisms. *Commun. Num. Meth. Engin.* 19: 689-702, 2002. Times Cited: 7.

Book Chapters:

- [1] J J Muñoz, J. Hambelton, S. Sloan. "R-adaptivity in Limit Analysis". Book title: *Direct Methods for Limit States in Structures and Materials*. Spiliopoulos, Konstantinos; Weichert, Dieter (Eds). Springer , In press.
- [2] J J Muñoz, N Rabiei, A Lyamin and A Huerta. "Computation of bounds for anchor problems in limit analysis and decomposition techniques". Book title: *Direct Methods for Limit States in Structures and Materials*. Spiliopoulos, Konstantinos; Weichert, Dieter (Eds). Springer , 2013.
- [3] J J Muñoz, V Conte and M Miodownik (2010). "Stress Dependent Morphogenesis Continuum Mechanics and System of Trusses". Book title: *Continuum Mechanics*. Andrus Koppel and Jaak Oja (Eds). Nova Publishers, 2010.
- [4] G Jelenic, J J Muñoz. "Conserving time-integration schemes for flexible mechanisms with sliding joints". Book title: *Multibody Dynamics. Computational Methods and Applications*. JC García Orden, JM Goicolea and J Cuadrado (Eds). Series: *Comp. Meth. Appl. Sci.* (Springer Verlag), 2007.

COMPETITIVE PROJECTS

- Funding body: "Ministerio de Ciencia, Innovación y Tecnología".
Insitution: "Centre Internacional De Metodes Numerics A L Enginyeria (CIMNE) "
Amount and reference: 4,000,000 euros, CEX2018-000797-S (Severo Ochoa).
Start date and duration: 16/12/2020-, 48 months.
Role: grantee. Principal Investigator: E. Oñate.
- Título: "Computational Modelling of Limb Growth"
Funding body: "European Commission".
Amount and reference: 737196 euros, Ref. 841047 (Marie Curie IF).
Date and duration: 1/5/2019, 36 months.
Researchers: Ester Comellas (IP), JJ Muñoz (host).

- Title: "Reduction numerical techniques for minimisation of geometrical errors in car body tooling industry"
 Funding body: "Generalitat de Catalunya".
 Amount and reference: 36600 euros, 2018 ID 0023, (Doctorados industriales).
 Start date and duration: 12/10/2018, 36 months.
 Researchers: JJ Muñoz (IP).
- Title: "Modelizacion numérica de la mecánica celular en tejidos"
 Funding Body: "Ministerio de Economía y Competitividad".
 Amount and reference 24200 euros, EUIN2017-86302 (Europa Investigación).
 Start date and duration: 1/4/2017, 24 months.
 Researchers: JJ Muñoz (IP), M Arroyo (UPC), P Sáez (UPC).
- Title: "Experimentally based computation of inter-cellular stresses"
 Funding body: "Innitiative d'Excelence, International Strategic Partnership (ISP)", France.
 Joint doctorate with Université Grenoble Alpes (UGA).
 Amount and references: 44928 euros, ECIS-7804.
 Start date and duration: 1/12/2018, 36 months.
 Researchers: JJ Muñoz (UPC), G Cappello (UGA)
- Title: Computational models for wound healing, HEAL (Ref. DPI2016-74929-R)
 Start date and duration: 1/1/2017, 3 years
 Funding: 118.580.00 €
 Scope: National.
 Funding body: Spanish ministry of Economy and competitiveness (MinECo)
 Participants: Muñoz JJ, Rodríguez-Ferrán A., J Poblet, Y. Mao, E Khul
 Principal Investigator: JJ Muñoz.
- Title: Computational models for multicellular dynamics: application to embryogenesis and cellular motility in tissues.
 Start date and duration: 1/1/2014, 3 years
 Funding and reference: 48.400.00 €, DPI2013-43272-R.
 Funding body: Ministerio de Economía y Competitividad (MinECo)
 Participants: Muñoz JJ, Rodríguez-Ferrán A.
 Principal Investigator: JJ Muñoz.
- Project Title: 3D Multiscale Mechanical Modelling of Tissue Growth
 Grant: Henry Wellcome Postdoctoral Fellowship
 Funding Body: Wellcome Trust, United Kingdom.
 Amount awarded: 250,000 GBP.
 Duration: 01/2014-12/2017.
 Participants: J Muñoz, B Baum, M Miodownik and Y Mao.
 Principal investigator: Melda Tozluoglu.
- Title: Simulation in Engineering and Entrepreneurship Doctorate (Erasmus Mundus Joint Doctorate) www.cimne.com/emjd-seed
 Start date and duration: 8/10/2012, 5+3 years
 Funding: 5010000.00 €
 Scope: European.
 Funding body: European Commission

Participants: 8 Universities (full partners), 5 associated partners, and 8 other industrial partners.

Coordinator UPC: J J Muñoz.

- Title: Numerical Methods for Applied Sciences and Engineering
Start date and duration: 1/01/2014, 36 months
Funding: 48000.00 €
Scope: Regional
Funding body: Catalan agency for university grants managements (AGAUR)
Participants: 11
Principal researcher: Huerta, A.
- Title: Numerical Methods for Applied Sciences and Engineering
Start date and duration: 22/07/2009, 48 months
Funding: 48880.00 € Scope: Regional
Funding body: Catalan agency for university grants managements (AGAUR)
Participants: 9
Principal researcher: Huerta, A.
- Title: Acciones integradas Spain-Italy
Participating institutions: Univ. degli Studi Roma Tre, UPC
Start date and duration: 01/01/2008, 24 months
Funding: 10000.00 €
Scope: National
Funding body: Spanish Ministry of Education and Science (MEC)
Participants: 10
Principal researcher: Arroyo, M.
- Title: Numerical modelling of structures and infrastructures: design, durability and limit analysis
Participating institutions: Universitat Politècnica de Catalunya (UPC)
Start date and duration 01/01/2007, 3 years
Funding: 185130.00 € Scope: National
Funding body: Spanish Ministry of Science and Innovation (MICINN)
Participants: 6
Principal researcher: Huerta, A.
- Type of participation: Researcher
Research groups: Materials Research Group
Title: Computer simulations of the mechanics of gastrulation in Drosophila embryos
Institution in which the research was undertaken: King's College London
Funding: 168000 euros
Funding body: Biological and Physical Sciences Research Council (BPSRC)
Institution in which the research was undertaken: Division of Engineering, King's College London
Start date and duration: 28/06/2006, 2 years
Principal researcher: Miodownik, M
- Title: A methodology for durability assessment of composite materials and structures under cyclic loads
Participating institutions: CIMNE (Spain), Rockfield (UK), Imperial College London, (UK)

Start date and duration 01/11/2004, 3 years
Institution in which the research was undertaken: Imperial College London
Funding: 450000.00 € Scope: European
Funding body: European Commission
Participants: 19
Principal researcher: Galvanetto, U.

- Title: Durability analysis of concrete for radioactive waste disposal in El Cabril (Córdoba, Spain).
Participating institutions: Instituto Eduardo Torroja (CSIC), Spanish Society for Radioactive Waste Disposal (ENRESA)
Start date and duration 09/11/1998, 2 years
Funding: 235000.00 € Scope: National
Funding body: ENRESA
Participants: 8
Principal researcher: Andrade, C.

LANGUAGES

	Speaking	Reading	Writing
Catalan	Excellent	Excellent	Excellent
Spanish	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
French	Excellent	Excellent	Very good
German	Fair	Good	Fair