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## **2010 Scientific Performance**

At the end of 2008 there were 25 PhD holding members and 74 researchers and post-graduation students working at the Institute, which in that year were responsible for the publication of 57 articles in peer-reviewed journals (14 other were in press), 6 chapters of internationally edited books, and 5 PhD and 3 MSc theses. Additionally, 91 communications were presented in international scientific conferences, 4 articles were published in national journals and 2 patents were granted to, or applied for, by members of IPC. This output is consistent with the trend of the last years, albeit with some variations from year to year. Concurrently, there was an undeniable consolidation of the international visibility of the members of the Institute, as a result of increasing editorial activities, of the consistent organization of scientific events and invitations for conferences and of the award of international prizes.

## **Book Chapters**

1. ANTUNES, P.J., DIAS, G.R., COELHO, A.T., REBELO, F., & PEREIRA, T. 2008. [Hyperelastic Analysis of Cork-Polyurethane Gel Composites](#)  
Boukamel, A., Laiarinandrasana, L., Méo, S., & Verron, E. (eds), Constitutive Models for Rubber V. Taylor & Francis p. 373-378.
2. ANTUNES, P.J., DIAS, G.R., COELHO, A.T., REBELO, F., & PEREIRA, T. 2008. [Nonlinear 3D foot FEA modeling from CT scan medical images](#)  
. Pages 135-141 of: Tavares, João, & Natal, Jorge (eds), Computational Vision and Medical Image Processing. Taylor & Francis.
3. CUNHA, M. M.; PUTNIK, G. D.; SIMOES, R.; [Market of Resources for Health Care Teleservices Management](#)  
In **Encyclopedia of Networked and Virtual Organizations**  
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978-1-59904-885-7.

4. FERREIRA, J.; FONSECA, C.; COVAS, J.A.; GASPAR-CUNHA, A. - [Evolutionary Multi-Objective Robust Optimization](#)

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, ISBN 978-3-902613-32-5.

5. LARONTONDA, F. D. S.; HILLIOU, L.; GONCALVES, M. P.; SERENO, A. M. – [From Low Value renewable Resources to green Biomaterials for Edible Coating Applications](#)

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6. SIMOES, R.; [Virtual modelling and rapid prototyping as an aid in collaborative product design and development](#) ; In **Encyclopedia of Networked and Virtual Organizations** ; G.D. Putnik, M.M.Cunha (Eds.), Idea Group Reference, 2008, p. 1812. ISBN 978-1-59904-885-7

## PhD Theses

1. CABRAL-FONSECA, S., **Durabilidade de Materiais compósitos de Matriz Polimérica Reforçados com Fibras usados na Reabilitação de Estruturas de Betão** , Universidade do Minho, Guimarães.

2. DENCHEVA, N. V. – [Development and Investigation of Novel in situ Reinforced Nanocomposites Based on Polymer Blends](#) , Universidade do Minho, Guimarães .

3. GHOSH, S., **Influence of the Microstructure on the Properties and Degradation Behaviour of Bio-Absorbable Synthetic and Natural-based Biomaterials** ,  
Universidade do Minho, Braga.

4. SABINO NETTO, A.C. - [Desenvolvimento e Avaliação de Compósito de Resina Epóxi Reforçado com Fibras de Aço na Fabricação de Blocos Moldantes para Moldagem por Injeção](#) , Universidade Federal de Santa Catarina, Florianópolis, Brasil .

5. YANEV, A. S. - [Direct Visualization and on-line Monitoring in Injection Moulding](#) ,  
Universidade do Minho, Guimarães .

## MSc Theses

1. ALVES, P.S.F.F. - [Shrinkage and Warpage Behaviour on Injection Moulding Parts](#) , Universidade do Minho, Guimarães.

2. SILVA, M. F A. - **Moldes Protótipos para a Produção de Peças em RIM**, Universidade do Minho, Guimarães, 2008. Tese de Mestrado.

3. SIMÕES, C. L. - [Aplicação da Metodologia ACV a um Dispositivo de Sinalização Rodoviária](#) , Universidade do Minho, Guimarães.

## Publications in Peer-reviewed Journals

1. AFONSO, I. M.; CRUZ, P.; MAIA, J. M.; MELO, L.F. - [Simplified numerical simulation to obtain heat transfer correlations for highly viscous non-Newtonian fluids in plate heat](#)

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2. Alves, P.S.; Pontes, A.J. – [The effect of thermomechanical environment on the shrinkage and warpage in thermoplastic parts](#)

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3. ANTUNES, P.J., DIAS, G.R. COELHO, A.T., REBELO, F., & PEREIRA, T. [Hyperelastic Modelling of Cork-Polyurethane Gel Composites: Non-linear FEA Implementation in 3D Foot Model](#)

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4. ANTUNES, P.J., DIAS, G.R., NUNES, J.P., VAN HATTUM, F.W.J., and OLIVEIRA, T. – [Finite Element Modelling of Thermoplastics Matrix Composite Gas Cylinders](#)

**Journal of Thermoplastic Composite Materials**

, Vol. 21, nº 5 (2008), p. 411-441.

5. ARAÚJO, M. A.; CUNHA, A. M.; MOTA, M. – [Enzymatic degradation of starch thermoplastic blends using samples of different thickness](#)

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6. BARROSO, E. G.; DUARTE, F. M.; COUTO, M.; MAIA, J. M. – [A Rheological Study of the Ageing of Emulsion and Microsuspension-Based PVC Plastisols](#)

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7. BILEWICZ, M.; VIANA, J. C.; DOBRZAŃSKI, L. A. - [Polymer composite strengthening by developed injection moulding technique](#)

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8. CAMPOS, A. R.; CUNHA, A. M.; TIELAS, A.; MATEOS, A. – [Biodegradable composites applied to the automotive industry: the development of a loudspeaker front](#)

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9. CARNEIRO, O. S.; REIS, R.; COVAS, J. A. – [Small-Scale Production of Co-Extruded Biaxially Oriented Blown Film](#) . **Polymer Testi**

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11. CHAPPÉ, J.M.; CARVALHO, P.; MACHADO, A.V.; VAZ, F.; ALVES, E.; BARRADAS, N.P.; FENKER, M.; KAPPL, H. - [Structural study of the oxidation process and stability of NbOxNy coatings](#) , **Nucl. Instr. and Meth. in Phys. Res. B.** Vol. 266 (2008) p. 4927–4932.

12. COVAS, J.A.; MAIA, J.M.; MACHADO, A.V.; COSTA, P. - [On-line rotational rheometry for extrusion and compounding operations](#)

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16. Denchev, Z; Tomanova, M; Lederer, A. - [On the anionic homo- and co-polymerization of ethyl- and butyl-2-cyanoacrylates](#) , **Journal of Polymer Science Part A – Polymer Chemistry**, Vol. 46, n<sup>o</sup> 15 (2008), p. 5142-5156.

17. DENCHEVA, N.; OLIVEIRA, J.; CARNEIRO, O.; NUNES, T.; DENCHEV, Z. – [Preparation and Properties of Novel In Situ Composite Materials Based on Polyethylene-Polyamide Oriented Blends](#) , **Materials Science Forum**, Vols. 587-588 (2008), p. 515-519.

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21. FARIA, R. P.; CARNEIRO, O. S.; NÓBREGA, J. M.; RITTO, M. K. – [Design and Optimisation of a Blow Moulded Container](#)

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24. GASPAR, J.; BÁRTOLO, P.; DUARTE, F. M. – [Cure and rheological analysis of reinforced resins for stereolithography](#) , **Materials Science Forum**, Vol. 587-588, (2008), p. 563-567.

25. GASPAR-CUNHA, J.A. COVAS - [Robustness in Multi-Objective Optimization using Evolutionary Algorithms](#) . **Computational Optimization and Applications** , Vol. 39 (2008), 75-96.

26. GHOSH, S.; GUTIERREZ, V.; FERNANDEZ, C.; RODRIGUEZ-PEREZ, M. A.; VIANA, J. C.; REIS, R. L.; MANO, J. F. – [Dynamic mechanical behavior of starch-based scaffolds in dry and physiologically simulated conditions: effect of porosity and pore size](#)

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