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## **2012 Scientific Performance**

At the end of 2012 there were 26 PhD holding members and 63 researchers and post-graduation students working at the Institute, which in that year were responsible for the publication of 67 articles in peer-reviewed, 8 chapters of internationally edited books, 5 PhD and 25 MSc theses. Additionally, 91 communications were presented in international scientific conferences and 4 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.

## **Books**

1. 1.Carneiro, O.S.; Nóbrega, J.M., Design of Extrusion Forming Tools. Smithers Rapra Technology, (ISBN: 9781847355171), 2012.

## **Book Chapters**

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1. 1.Carneiro, O.S.; Nóbrega, J.M., Main Issues in the Design of Extrusion Tools. Design of Extrusion Forming Tools , Smithers Rapra Technology, 1-36, 2012, (ISBN: 9781847355171).

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3. 3.Denchev, Z.; Dencheva, N.V., Manufacturing and Properties of Aramid Reinforced

Polymer Composites. Synthetic Polymer-Polymer Composites, Hanser Publishers, 251-280, 2012, (ISBN: 978-1-56990-510-416)

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4. 4.Dencheva, N.V.; Denchev, Z., Preparation, mechanical properties and structural characterization of in-situ microfibrillar composites based on oriented polyethylene/polyamide blends. Synthetic Polymer-Polymer Composites, Hanser Publishers, 465-530, 2012, (ISBN: 978-1-56990-510-416)

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5. 5.Fernández-López, Helena; Afonso, J.A.; Correia, J.H.; Simões, R., The need for standardized tests to evaluate the reliability of data transport in wireless medical systems. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Springer, Berlin Heidelberg, 102 102, 137-145, 2012, (ISBN: 978-3-642-35154-9).

6. 6.Moura, I.; Machado, A.V., Modification of biodegradable polymers through reactive extrusion-I. Starch-Based Polymeric Materials and Nanocomposites, CRC Press, 2012, (ISBN: 1439851166).

7. 7.Nóbrega, J.M.; Carneiro, O.S., Profile Forming Tools. Design of Extrusion Forming Tools, Smithers Rapra Technology, 169-220, 2012, (ISBN: 9781847355171).

8. 8.Santos, Isa C.T.; Sepúlveda, A.T.; Viana, J.C.; Pontes, A. J.; Wardle, B. L.; Sampaio, S. M.; Roncon-Albuquerque, R.; Tavares, João Manuel R. S.; Rocha, Luís A., Improving post-EVAR surveillance with a smart stent-graft. Technologies for medical sciences, Book Series: Lecture Notes in Computational Vision and Biomechanics, Springer, 1 1, 267-289, 2012.

## **International Publications in Peer-reviewed Journals**

1. 1.Ahmad Zeinolebadi; Norbert Stribeck; Morteza Ganjaee-Sari; Dencheva, N.V.; Zlatan Denchev; Stefan Botta, Nanostructure Evolution Mechanisms During Slow Load Cycling of Oriented HDPE/PA Microfibrillar Blends as a Function of Composition. Macromolecular Materials and Engineering, 297(11), 1102-1113, 2012.

<http://hdl.handle.net/1822/20767>

1. 2.Alves, Filipe; Dias, Rosana; Cabral, José; Rocha, Luís A., Autonomous MEMS Inclinometer. Lecture Notes in Computer Science, 7326, 26-33, 2012.

1. 3.Alves, Filipe; Dias, Rosana; Cabral, José; Rocha, Luís A., Pull-in MEMS Inclinometer. Procedia Engineering, 47, 1239-1242, 2012.

1. 4.Antunes, Carla; van Duin, Martin; Machado, A.V., Effect of crosslinking on morphology and phase inversion of EPDM/PP blends. Materials Chemistry and Physics, 133, 410-418, 2012.

1. 5.Arezes, P.M.; Bernardo, C.A.; Mateus, Olga, Measurement strategies for occupational noise exposure assessment: A comparison study in different industrial environments. International Journal of Industrial Ergonomics, 42(1), 172-177, 2012.

1. 6.Barbas, J.M.; Machado, A.V.; Covas, J.A., In-line Near-Infrared Spectroscopy: A Tool to Monitor the Preparation of Polymer-Clay Nanocomposites in Extruders. Journal of Applied Polymer Science, 127(6), 4899-4909, 2012.

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of vapor grown carbon nanofiber/epoxy composites with different filler dispersion levels. Physics Letters A, 376, 3290-3294, 2012. [ <http://hdl.handle.net/1822/21881> ]

1. 13. Cardoso, Paulo; Silva, Jaime; Paiva, M.C.; Van Hattum, F.W.J.; Lanceros-Méndez, Senentxu, Comparative Analyses of the Electrical Properties and Dispersion Level of VGCNF and MWCNT: Epoxy Composites. Journal of Polymer Science, Part B: Polymer Physics, 50, 1253-1261, 2012.

1. 14. Carneiro, O.S.; Covas, J.A.; Domingues, C., Bi-axially oriented blown film technology: searching for suitable polymers and processing conditions. International Polymer Processing, 27, 348-357, 2012. <http://hdl.handle.net/1822/15628>

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1. 19.Costa, Ângelo; Castillo, José Carlos; Novais, P.; Fernández-Caballero, Antonio; Simões, R., Sensor-driven agenda for intelligent home care of the elderly. Expert Systems with Applications, 39(15), 12192-12204, 2012.

1. 20.Costantino, A.; Pettarin, V.; Viana, J.C.; Pontes, A. J.; Pouzada, A.S.; Frontini, P. M., Microstructure of PP/clay nanocomposites produced by shear induced injection moulding. Procedia Materials Science, 1, 34-43, 2012.

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1. 29.Fernández-López, Helena; Afonso, J.A.; Correia, J.H.; Simões, R., Towards the design of efficient nonbeacon-enabled ZigBee networks. Computer Networks, 56(11),

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## **Patents**

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2. 2. Pontes, A. J., MATERIAL COMPÓSITO DE GRANULADO DE BORRACHA DE PNEUS

USADOS RECICLADO NUMA MATRIZ POLIMÉRICA, Patente Internacional nº PPI45794-12. Patente Internacional nº PPI45794-12, 2012.

3. 3.Pontes, A. J., PERFIL COMPÓSITO PARA COLECTOR SOLAR, RESPECTIVO MÉTODO DE

PRODUÇÃO E UTILIZAÇÃO" Patente de Invenção Nacional nº 106557 .Patente de Invenção Nacional nº 106557, 2012.

1. 4.Pontes, A. J., "Processo de sobremoldação de vedante numa tampa plástica" Patente de Invenção Nacional nº 106067 H. Patente de Invenção Nacional nº 106067 H, 2012.

## PhD Theses

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1. 5.Novais, Rui Miguel Teixeira, *Functionalized carbon nanotubes for polymer based nanocomposites*, Tese de doutoramento em Ciência e Engenharia de Polímeros e Compósitos, 2012;

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## MSc Theses

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2. 2.Bruno Joaquim Silva Mendes, **Micro-Acelerómetro Mecânico Polimérico Micro-Injetado**, Mestrado Integrado em Engenharia Eletrónica Industrial e Computadores, 2012;

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5. 5.Estefânea Martins Ribeiro, **Ocupação do solo resultante da implementação de Turbinas Eólicas**, Mestrado em Gestão Ambiental, 2012;

6. 6.Febin Cyriac, **Correlation Between mechanical non-linearity in LAOS and**

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8. 8.Guilherme de Abreu Marins, **Estudos de misturas LDPE/LLDPE na produção de filme tubular**, Mestrado Integrado em Engenharia de Polímeros, 2012;

9. 9.Hernâni Filipe Rodrigues Dias, **Exposição ao ruído resultante da implementação de turbinas eólicas**, Mestrado em Gestão Ambiental, 2012;

10.Inês Catarina de Oliveira e Silva, **Estudo da permeabilidade em peças rígidas injetadas de polipropileno e poli(ácido láctico) com incorporação de montmorilonitas**, Mestrado Integrado em Engenharia de Polímeros, 2012;

11.Isabel Freitas, **Sustentabilidade de compósitos e polipropileno e nanofibras de carbono: avaliação do efeito de reprocessamento**, Mestrado Integrado em Engenharia de Materiais, 2012;

12.Isabel Lopes, **Morfologia e Propriedades Mecânicas de Compósitos de Nanotubos de Carbono/Poli (épsilon-caprolactona)**, Mestrado Integrado em Engenharia de Polímeros, 2012;

13.Isabel Oliveira dos Santos, **Estudo de compósitos em polipropileno com pigmentos metálicos para aplicações moldadas por injeção**, Mestrado Integrado em Engenharia de Polímeros, 2012;

14.João Diogo Correia Barros, **Migração de aditivos em filmes laminados para embalagem alimentar**, Mestrado Integrado em Engenharia de Polímeros, 2012;

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16. Luís Filipe Martins, **Soluções Tecnológicas para o Fabrico de um Microacelerómetro Polimérico**, Mestrado Integrado em Engenharia de Polímeros, 2012;
17. Maria Isabel Macedo de Freitas, **Sustentabilidade de compósitos de polipropileno e nanofibras de carbono: avaliação do efeito de reprocessamento**, Mestrado Integrado em Engenharia de Polímeros, 2012;
18. Marta Sofia Dias Sá Santos, **Fabrico, Caracterização e Transformação por Compressão de Pré-impregnados de matriz termoplástica**, Mestrado Integrado em Engenharia de Polímeros, 2012;
19. Nicola Donato, **A Contribution to the non-linearity in LAOS and instabilities in extrusion of industrial polyethylene**, Mestrado Europeu em Reologia Avançada (EURHEO), 2012;
20. Sandra Cristina Macedo Ferreira, **Otimização do processo de injeção de moldações de paredes finas em poli(ácido láctico): Estudo das forças de extração e aplicabilidade à embalagem**, Mestrado Integrado em Engenharia de Polímeros, 2012;
21. Shriya Reddy Paidá, **Adaptation of an unstructured flow modelling code for complex rheology materials**, Mestrado Europeu em Reologia Avançada (EURHEO), 2012;
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