

**Group Report 2012**  
**R&D group of Prof. Paulo M.S. Tavares de Castro**  
**December 31, 2012**

**Main contributors in the period <sup>1</sup>**

- Carlos M.C. Albuquerque
- Daniel F.C. Peixoto
- Daniel F.O. Braga
- Diogo M. Ramos
- João P.A. Dias
- Miguel A.V. de Figueiredo
- Pedro M.G.P. Moreira
- Sérgio M.O. Tavares
- Valentin Richter-Trummer

**Theses**

*PhD*

- Valentin Richter-Trummer, 'Residual stress effects and damage tolerance behaviour of integral lightweight structures manufactured by FSW and HSM', doctoral thesis, Mechanical Engineering, Faculdade de Engenharia da Universidade do Porto, 2012 (co-supervisors Jorge F. dos Santos (HZG, ex-GKSS), Pedro Vilaça (IST) and industrial advisor Marco Pacchione (AIRBUS, Hamburg)).

*MSc*

- Christoph Sebastian Thies <sup>2</sup>, 'Contribution to the characterization of the mechanical behavior of a structural steel', Mechanical Engineering Master thesis, Faculdade de Engenharia da Universidade do Porto, 2012
- Daniel Filipe Oliveira Braga, 'Contour method: procedure optimization', Mechanical Engineering Master thesis, Faculdade de Engenharia da Universidade do Porto, 2012 (supervisor: Valentin Richter-Trummer, co-sup.: Paulo M.S.T. de Castro)
- Filipe André Alves Cardoso, 'Medição de tensões residuais a partir de um ensaio de flexão em quatro pontos', Mechanical Engineering Master thesis, 2012 (supervisor: Pedro M.G.P. Moreira, co-sup.: Paulo M.S.T. de Castro)
- Mariana Melo Cruz Ferreira Bartolomeu, 'Projeto de um Equipamento de Manipulação de Cargas, EFACEC, Engenharia e Sistemas, S.A.', Mechanical Engineering Master thesis, Faculdade de Engenharia da Universidade do Porto, 2012 (supervisors: Dan Ulmamei (EFACEC); Luís Andrade Ferreira and Paulo M.S.T. de Castro (FEUP))

**Books**

- P.M.G.P. Moreira, L.F.M. da Silva, P.M.S.T. de Castro, eds., 'Structural Connections for Lightweight Metallic Structures', Springer, 2012, ISBN 978-3-642-18187-0

**Book chapters**

- P.M.G.P. Moreira, V. Richter-Trummer, P.M.S.T. de Castro, 'Lightweight stiffened panels fabricated using emerging fabrication technologies: fatigue behaviour', in: P.M.G.P. Moreira, L.F.M. da Silva, P.M.S.T. de Castro, eds., 'Structural connections for lightweight metallic structures', Springer, 2012, pp.151-172

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<sup>1</sup> More comprehensive accounts of the activities of the people mentioned may in certain cases be found in other annual reports, where details of activities outside this group will be found.

<sup>2</sup> ERASMUS Exchange student, of the Bauhaus-Universität Weimar, Germany.

- V. Richter-Trummer, P.M.G.P. Moreira, P.M.S.T. de Castro, 'Damage tolerance of aircraft panels taking into account residual stress', in: P.M.G.P. Moreira, L. F. M. da Silva, P.M.S.T. de Castro, eds., 'Structural connections for lightweight metallic structures', Springer, 2012, pp.173-194
- S.M.O. Tavares, 'Welded aeronautical structures: cost and weight considerations', in: P.M.G.P. Moreira, L.F.M. da Silva, P.M.S.T. de Castro, eds., 'Structural connections for lightweight metallic structures', Springer, 2012, pp.219-237
- S.M.O. Tavares, P. P. Camanho, P.M.S.T. de Castro, 'Materials selection for airframes: assessment based on the specific fatigue behavior', in: P.M.G.P. Moreira, L.F.M. da Silva, P.M.S.T. de Castro, eds., 'Structural connections for lightweight metallic structures', Springer, 2012, pp.239-261

#### Serials publications

- C.M.C. Albuquerque, R. M. C. Miranda, V. Richter-Trummer, M. A. V. de Figueiredo, R. Calçada, P. M. S. T. de Castro, 'Fatigue crack propagation behaviour in thick steel weldments', *International Journal of Structural Integrity*, vol.3, (2), 2012, pp.184 – 203
- V. Richter-Trummer, E. Suzano, M. Beltrão, A. Roos, J.F. dos Santos, P.M.S.T. de Castro, 'Influence of the FSW clamping force on the final distortion and residual stress field', *Materials Science and Engineering: A*, vol.538, 2012, pp.81-88
- C. Albuquerque, P.M.S.T. de Castro, R. Calçada, 'Efficient crack analysis of dynamically loaded structures using a modal superposition of stress intensity factors', *Engineering Fracture Mechanics*, vol.93, 2012, pp.75-91
- P.M.G.P. Moreira, A.M.P. de Jesus, M.A.V. de Figueiredo, M. Windisch, G. Sinnema, P.M.S.T. de Castro, 'Fatigue and fracture behaviour of friction stir welded aluminium–lithium 2195', *Theoretical and Applied Fracture Mechanics*, vol.60, (1), 2012, pp.1-9
- P.M.G.P. Moreira, P.M.S.T. de Castro, 'Fatigue crack growth on FSW AA2024-T3 aluminum joints', *Key Engineering Materials*, vol. 498, 2012, pp 126-138

#### *in press*

- Michael Papadopoulos, Sérgio Tavares, Marco Pacchione, Spiros Pantelakis, 'Mechanical behaviour of AA 2024 friction stir overlap welds', *International Journal of Structural Integrity*, in press

#### *invited paper, submitted*

- S.M.O. Tavares, P.M.S.T. de Castro, 'Lean structures for a more sustainable design', *International Journal of Terraspace Science and Engineering* (George Sih, editor)

#### Conference presentations

- P.M.G.P. Moreira, P.M.S.T. de Castro, 'A comparison of fatigue crack growth behavior of different Al alloys including their FSW joints', XIII Portuguese Conference on Fracture, SPM, Coimbra, February 2-3, 2012, proceedings pp.89-93
- D.F.C. Peixoto, L.A.A. Ferreira, P.M.S.T. de Castro, 'Fatigue crack growth rates in railway wheel and rail steels', XIII Portuguese Conference on Fracture, SPM, Coimbra, February 2-3, 2012, proceedings pp.113-117
- Daniel F.C. Peixoto, 'Wheel/rail contact fatigue', II LAETA Young Researchers Meeting 2012, FEUP, Porto, **Portugal**, April 10-11, 2012
- Daniel F. O. Braga, 'Lightweight aluminium panels for high speed railway passenger cars' II LAETA Young Researchers Meeting, FEUP, Porto, **Portugal**, 10-11 April 2012
- D.F.C. Peixoto, P.M.S.T. de Castro, L.A.A. Ferreira, 'Fatigue crack growth in railway steel', 1st Int Conf. on Railway Technology: Research, Development and Maintenance, organised by Civil-Comp Press in Las Palmas de Gran Canaria, **Spain**, April 18-20, 2012, in: Proceedings of the First International Conference on Railway Technology:

- Research, Development and Maintenance, J. Pombo, (editor), Civil-Comp Press, Stirlingshire, United Kingdom, paper 87, 2012. doi:10.4203/ccp.98.87
- Daniel F.O. Braga, Valentin Richter-Trummer, Paulo M.S.T. de Castro, 'The use of contour method for evaluating residual stress fields in butt welded plates', 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012
  - C. Thies, C. Albuquerque, S.M.O. Tavares, V. Richter-Trummer, M.A.V. de Figueiredo, P.M.S.T. de Castro, 'A contribution to the characterization of the mechanical behavior of S355 structural steel', 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012
  - Daniel Peixoto, Luís A. Ferreira, Paulo M.S.T. de Castro, 'Wheel/rail contact: fatigue behavior', 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012
  - P.M.G.P. Moreira, P.M.S.T. de Castro, 'AA2024-T3 FSW tailor welded blanks: fatigue crack growth behavior', 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012
  - S.M.O. Tavares, T.G. Santos, 'Defects detection in aeronautical structures joined by friction stir welding', 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012.
  - João P.A. Dias, Daniel F.O. Braga, Paulo M.S.T. de Castro, Sérgio M.O. Tavares, Pedro M.G.P. Moreira, 'Structural solutions for underframe/floor of passenger railway car: stiffness requirements', poster presentation at the 1st Int. Conference of the International Journal of Structural Integrity, FEUP, Porto, **Portugal**, June 25-28, 2012
  - Daniel Peixoto, Luís A. Ferreira, Paulo M.S.T. Castro, 'Fatigue crack growth tests in railway wheel and rail steels', 15th International Conference on Experimental Mechanics ICEM15, Faculty of Engineering, University of Porto, **Portugal**, July 22-27, 2012
  - Daniel Peixoto, Carlos Sousa, M. Teresa Restivo, Álvaro Ribeiro, José Rodrigues, 'Young's modulus determination: different methods and associated uncertainties', 15th International Conference on Experimental Mechanics ICEM15, Faculty of Engineering, University of Porto, **Portugal**, July 22-27, 2012
  - Daniel F.O. Braga, Valentin Richter-Trummer, Paulo M.S.T. de Castro, 'Residual stress measurement using the contour method: procedure optimization', 15th International Conference on Experimental Mechanics ICEM15, Faculty of Engineering, University of Porto, **Portugal**, July 22-27, 2012
  - C. Albuquerque, R. Calçada, P.M.S.T. de Castro, 'Fatigue assessment of a bowstring railway bridge', The Eleventh International Conference on Computational Structures Technology CST2012, Dubrovnik, **Croatia**, September 4-7, 2012 in: B.H.V. Topping, (editor), "Proceedings of the Eleventh International Conference on Computational Structures Technology", Civil-Comp Press, Stirlingshire, UK, Paper 106, 2012. doi:10.4203/ccp.99.106
  - A.C. Batista, D.F.C. Peixoto, J.P. Nobre, L. Coelho, D.M. Ramos, L.A.A. Ferreira, P.M.S.T. de Castro, 'Residual stress evolution in railway steels', 9th International Conference on Residual Stresses - ICRS 9, October 7-9, 2012, Garmisch-Partenkirchen, **Germany**
  - S.M.O. Tavares, P.M.S.T. de Castro, 'Product development and technology adoption in complex systems: the example of aeronautical products', II Conferência Internacional de Integração do Design, Engenharia e Gestão para a Inovação, Florianópolis, SC, **Brasil**, Oct. 21-23, 2012
  - D.F.C. Peixoto, L.A.A. Ferreira, P.M.S.T. de Castro, 'Fatigue crack propagation behavior in railway steels', 16th International Conference Transport Means, Kaunas and

Klaipeda, **Lithuania**, Oct. 25-26, 2012, in: Proceedings of 16th International Conference Transport Means, 2012, pp.21-24

- P.M.G.P. Moreira, V. Richter-Trummer, P.M.S.T. de Castro, 'Damage tolerance of stiffened aeronautical panels and residual stress effects', 16th International Conference Transport Means, Kaunas and Klaipeda, **Lithuania**, Oct. 25-26, 2012, in: Proceedings of 16th International Conference Transport Means, 2012, pp.162-165

#### **Edition of special issues**

- Selected papers presented at the ACE-X 2011, the 5th International Conference on Advanced Computational Engineering and Experimenting, Paulo M.S.T. de Castro, Pedro M.G.P. Moreira, Andreas Öchsner, guest editors; Paulo M.S.T. de Castro, Pedro M.G.P. Moreira, Andreas Öchsner, 'Fracture, fatigue and damage', Guest editorial of special issue, *International Journal of Structural Integrity*, vol. 3 (2), p

#### **Patents**

- Sérgio Tavares, O. Hartmut, and M. Pacchione, "Method and Device for Friction Stir Welding." International Application: WO2012007573, January 19 2012.

#### **Projects**

- PTDC/EME-PME/100204/2008 "Railways - rolling contact fatigue", IDMEC-FEUP with partners FCTUC, IST.
- "LighTRAIN - Estrado em alumínio para carruagens de passageiros", Proj. 21526, Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico (Si I&Dt) - Projectos em Co-Promoção. Project leader: ALSTOM; INEGI's participation coordinated by Pedro M.G.P. Moreira.
- "Cross Car Beam 360 - CCB 360", Proj. 23032 financed by European Regional Development Fund - ERDF through 'COMPETE – Programa Operacional Factores de Competitividade', QREN; leader SODECIA, partner FEUP, on-going, but formally to start on Jan. 1, 2013.
- "MAXBE - Interoperable Monitoring Diagnosis and Maintenance Strategies for Axle Bearings", contracto 314408, financed by the European Commission in the FP7. Project Leader: DECivil, FEUP, Cecília Vale<sup>3</sup>; Dec. 2012 – Dec. 2015; kick-off meeting Dec. 18, 2012
- OSCACER, consulting on MadreMax profiles by Sérgio M.O. Tavares, Nov. 2012, IDMEC.
- MT Aerospace, Augsburg, Germany, Fatigue crack growth and fracture toughness of 10mm thick Al specimens, INEGI contract through Pedro M.G.P. Moreira.

#### **Project reports**

- PTDC/EME-PME/100204/2008 "Railways", 2<sup>o</sup> Relatório de progresso, correspondente ao segundo ano; *rapporteurs*: Daniel F. C. Peixoto (IDMEC-FEUP), Luís Reis (IST), A. Castanhola Batista (FCTUC), Mar. 2012
- "LighTRAIN - Estrado em Alumínio para Carruagens de Passageiros", Proj. Nº 21526, Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico - Projectos em Co-Promoção, 1<sup>o</sup> Relatório Técnico-Científico Consolidado, Versão 1.0, 01.12.2011-31.05.2012. Leader do proj.: ALSTOM. (participação de INEGI coordenada por Pedro M.G.P. Moreira).
- "LighTRAIN - Estrado em Alumínio para Carruagens de Passageiros", Proj. Nº 21526, Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico - Projectos em

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<sup>3</sup> P.M.S.T. de Castro – contribution to drafting of parts of the proposal; member of the DEMec team involved in FEUP's participation.

Co-Promoção, 2º Relatório Técnico-Científico Consolidado, Versão 1.0, 01.06.2012-30.11-2012, Leader do proj.: ALSTOM. (participação de INEGI coordenada por Pedro M.G.P. Moreira)

- Pedro M. G. P. Moreira, Valentin Richter-Trummer, Miguel A. V. de Figueiredo, Paulo M. S. Tavares de Castro, 'Fatigue crack growth rate analysis of 10 mm thick Al specimens - Test programme for MT Aerospace' INEGI Report, version 1, Porto, February 13, 2012
- Pedro M.G.P. Moreira, Miguel A.V. de Figueiredo, Paulo M.S. Tavares de Castro, 'Fracture toughness of 10 mm thick Al specimens - Test programme for MT Aerospace', INEGI Report, version 1, Porto, July 31, 2012
- Sérgio M. O. Tavares, P. M. S. T. de Castro, 'Aumento da resistência de um perfil MadreMax', Nov. 30, 2012

#### *working documents*

- Daniel F.O. Braga, Sérgio M.O. Tavares, Pedro M.G.P. Moreira, 'Projeto LighTRAIN - Modelação da atual solução ALSTOM Transport usando elementos shell e software ABAQUS', relatório de progresso INEGI, 10 de Fevereiro de 2012
- Daniel F.O. Braga, Luís A.A. Ferreira, Paulo M.S. Tavares de Castro, Pedro M.G.P. Moreira, Sérgio M. O. Tavares, 'LighTRAIN QREN Project - Railway passenger car structure: evolution and aspects of the state-of-the-art', INEGI report, Porto, 21st March 2012
- Daniel F.O. Braga, Sérgio M.O. Tavares, Pedro M.G.P. Moreira, Paulo M.S. Tavares de Castro, 'LighTRAIN QREN Project - Finite elements modeling of several structural alternatives for the floor panel', INEGI report, Porto, 21st March 2012
- Diogo M. Ramos, Daniel F.C. Peixoto, 'Procedimento de utilização da máquina de discos', working doc do projecto FCT "Railways", Julho de 2012
- João P.A. Dias, Daniel F.O. Braga, Sérgio M.O. Tavares, Pedro M.G.P. Moreira, Miguel A.V. de Figueiredo, Paulo M.S. Tavares de Castro, 'Seleção do processo de ligação: lap seam joints e afins, com atenção especial, mas não exclusiva, a *one side welding* e a ligas de Al', LighTRAIN QREN Project, draft report, INEGI, 6 de Setembro de 2012, para reunião de 10/09/2012
- João P.A. Dias Daniel F.O. Braga Sérgio M.O. Tavares Pedro M.G.P. Moreira Paulo M.S. Tavares de Castro, 'Estrado ferroviário: análise numérica por elementos finitos', LighTRAIN QREN Project, draft report, INEGI, para reunião de 10/09/2012
- João P. Dias, Daniel F.O. Braga, Sérgio M.O. Tavares, Miguel A.V. de Figueiredo, Paulo M.S.T. de Castro, Pedro M.G.P. Moreira, 'Projecto LighTRAIN – *Clinching*: Revisão da Literatura e estudo preliminar de uma aplicação – reunião 10/09/2012', INEGI report para reunião de 10/09/2012
- João P.A. Dias, Daniel F. O. Braga, Sérgio M.O. Tavares, Pedro M.G.P. Moreira, Paulo M.S. Tavares de Castro, 'Relatório de progresso relativo ao segundo semestre do projecto LighTRAIN', LighTRAIN QREN Project, INEGI report, Porto, 16/11/2012.
- Diogo M. Ramos, 'Disposição dos equipamentos na sala 2 do CETRIB', doc. de trabalho, 20 de Dezembro de 2012

### **Missions and project meetings**

#### *Daniel F.C. Peixoto*

- Project PTDC/EME-PME/100204/2008 "Railways - rolling contact fatigue" meeting, Coimbra, **Portugal**, during the XIII Portuguese Conference on Fracture, Feb. 2, 2012
- Project "LighTRAIN", 4th working meeting, INEGI, Porto, **Portugal**, Mar. 26, 2012
- II LAETA Young Researchers Meeting 2012, FEUP, Porto, **Portugal**, April 10-11, 2012
- 1st Int. Conf. on Railway Technology: Research, Development and Maintenance, organised by Civil-Comp Press in Las Palmas de Gran Canaria, **Spain**, April 18-20, 2012
- 16th International Conference Transport Means, Kaunas and Klaipeda, **Lithuania**, Oct. 25-26, 2012

*Daniel F.O. Braga*

- Project “LighTRAIN”, 4th working meeting, INEGI, Porto, **Portugal**, Mar. 26, 2012
- II LAETA Young Researchers Meeting 2012, FEUP, Porto, **Portugal**, April 10-11, 2012
- Project “LighTRAIN”, 5th working meeting, IST, Lisbon, **Portugal**, May 14, 2012
- Project “LighTRAIN”, workshop on project status and RAMS issues, ALSTOM-Transport, Saint-Ouen, **France**, May 22, 2012
- ‘The Contour Method’, One Day Seminar, The Open University, Walton Hall, Milton Keynes, **England**, May 30, 2012
- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012

*Diogo M. Ramos*

- Project PTDC/EME-PME/100204/2008 “Railways - rolling contact fatigue”, contacts with Prof A. A. Castanhola Batista, Grupo de Tensões Residuais, Centro de Estudos de Materiais por Difraccção de Raios-X - CEMDRX, Coimbra, **Portugal**, Aug. 2, 2012

*João P. A. Dias*

- Project “LighTRAIN”, 5th working meeting, IST, Lisbon, **Portugal**, May 14, 2012
- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012

*Miguel A.V. de Figueiredo*

- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012

*Paulo M.S.T. de Castro*

- Project “LighTRAIN”, 3rd working meeting, ALSTOM, Lisbon, **Portugal**, Jan. 24, 2012
- I Jornada Ibérica de aplicación industrial de la técnica Friction Stir Welding, O Porriño, Galicia, **España**, Feb. 1, 2012
- Project PTDC/EME-PME/100204/2008 “Railways - rolling contact fatigue” meeting, Coimbra, **Portugal**, during the XIII Portuguese Conference on Fracture, Feb. 2, 2012
- Project “LighTRAIN”, 4th working meeting, INEGI, Porto, **Portugal**, Mar. 26, 2012
- Project “LighTRAIN”, 5th working meeting, IST, Lisbon, **Portugal**, May, 14, 2012
- Assessment of ERASMUS MUNDUS, call for proposals EACEA 42/11, Brussels, **Belgium**, June 10-13, 2012
- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012
- 16th International Conference Transport Means, Kaunas and Klaipeda, **Lithuania**, Oct. 25-26, 2012
- Project “MaxBe”, kick-off meeting, FEUP, Porto, **Portugal**, Dec. 18, 2012

*Pedro M.G.P. Moreira*

- I Jornada Ibérica de aplicación industrial de la técnica Friction Stir Welding, O Porriño, Galicia, **España**, Feb. 1, 2012 (invited presenter)
- Project “LighTRAIN”, 3rd working meeting, ALSTOM, Lisbon, **Portugal**, Jan. 24, 2012
- Project “LighTRAIN”, 4th working meeting, INEGI, Porto, **Portugal**, Mar. 26, 2012
- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012

*Sérgio M.O. Tavares*

- Project “LighTRAIN”, 6th working meeting, INEGI, Porto, **Portugal**, Sept. 10, 2012
- II Conferência Internacional de Integração do Design, Engenharia e Gestão para a Inovação, Florianópolis, SC, **Brasil**, Oct. 21-23, 2012

**Events – organization and other involvement**

- XIII Portuguese Conference on Fracture, SPM, Coimbra, February 2-3, 2012 (P.M.S.T. de Castro, member of the Organizing Committee)
- 1st Int. Conf. of the International Journal of Structural Integrity, IJSI-2012, Porto, FEUP, Porto, Portugal, June 25-28, 2012; chair: P.M.S.T de Castro; proceedings editor: S.M.O. Tavares
- 16th International Conference Transport Means, Kaunas and Klaipeda, Lithuania, 25-26 Oct. 2012, (P.M.S.T. de Castro, member of the Scientific Committee)
- Apresentação no âmbito da disciplina Órgãos de Máquinas, pela empresa REIMAN na FEUP, Nov. 21, 2012 (main organizer: A. Melro, INEGI).

**Membership of committees, etc.***P.M.S.T. de Castro*

- IRF 2013, 4th International Conference on Integrity, Reliability & Failure, Funchal, Portugal, June 23-27, 2013 (reviewer of submissions)
- ACE-X 2013, 7th Int. Conf. Advanced Computational Engng. and Experimentation, Madrid, Spain, July 1-4, 2013

- Sociedade Portuguesa de Materiais, Coordenador da Divisão Fractura
- Member of the External Advisory Committee, CEMUC - Centro de Engenharia Mecânica da Universidade de Coimbra

*Pedro M.G.P. Moreira*

- Sociedade Portuguesa de Materiais, Coordenador adjunto da Divisão Fractura

#### **Awards and prizes**

- Prémio Eng<sup>a</sup> Cruz Azevedo 2011 para os melhores artigos publicados na Revista *Mecânica Experimental* da APAET em 2010 e 2011:  
R.A.S. Castro, V. Richter-Trummer, S.M.O. Tavares, P.M.G.P Moreira, P. Vilaça, P.M.S.T. de Castro, 'Friction stir welding on T-joints: residual stress evaluation', originally presented at: 8<sup>o</sup> Congresso Nacional de Mecânica Experimental, Guimarães, 21-23 de Abril, 2010

#### **Refereeing**

*P.M.S.T. de Castro*

*journal papers*

- *Construction & Building Materials*
- *Engineering Failure Analysis*
- *Experimental Mechanics*
- *Fatigue and Fracture of Engineering Materials and Structures*
- *International Journal of Structural Integrity*
- *Journal of Strain Analysis for Engineering Design*
- *Materials Science and Engineering A*
- *Measurement Science and Technology*
- *Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Engineering Manufacture*
- *Shock and Vibration*

*book proposals*

- new book proposal at the request of *Chandos Publishing (Oxford) Limited*, Feb 2012

*Sérgio M.O. Tavares*

- *Engineering Fracture Mechanics*
- *International Journal of Structural Integrity*

#### **Evaluations**

*Paulo M.S.T. de Castro*

- Assessment of ERASMUS MUNDUS, call for proposals EACEA 42/11, Brussels, June 10-13, 2012
- Evaluation of Research Quality 2004-2010 (VQR 2004-2010), Agenzia nazionale di valutazione del sistema universitario e della ricerca - ANVUR, Italy, Sept. 2012 –current
- Helmholtz-Gemeinschaft, one assessment for the Helmholtz-Postdoc-Programme, Oct. 2012
- Member of the External Advisory Committee do CEMUC<sup>4</sup>; opinion on CEMUC's 2011 activities: 'Comentário ao relatório científico 2011 do Centro de Engenharia Mecânica da Universidade de Coimbra – CEMUC', Sept. 24, 2012

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<sup>4</sup> Centro de Engenharia Mecânica da Universidade de Coimbra (CEMUC), Unidade de investigação financiada pela Fundação para a Ciência e a Tecnologia, no âmbito do Programa de Financiamento Plurianual de Unidades de I&D.

### Other

- Paulo M.S.T. de Castro, intervenção na Sessão Comemorativa dos 25 Anos ERASMUS na Universidade do Porto, Comemorações dos 25 anos do Programa ERASMUS na Universidade do Porto, 22 de Maio de 2012
- Paulo M.S.T. de Castro, Rui M.C. Guimarães, texto sobre o Professor Vasco Sá, preparado a pedido do Director da FEUP Professor Sebastião Foyo de Azevedo, 12 de Abril de 2012; uma versão reduzida deste texto foi publicada como: Paulo M.S.T. de Castro, Rui M.C. Guimarães, 'FEUP homenageia Prof. Vasco Sá', *Engenharia: Boletim Informativo da Faculdade de Engenharia da Universidade do Porto*, Inverno 2012, pp.34-35
- Paulo M. S. T. de Castro, 'Fadiga e fractura de um aço usado em construções soldadas', comunicação à Academia das Ciências de Lisboa, July 5, 2012

### Dissemination

- Paulo M.S.T. de Castro, 'Como se garante a segurança das fuselagens?', Programa Engenharia num Minuto [www.fe.up.pt/engmin](http://www.fe.up.pt/engmin), March 26, 2012  
<http://www.publico.pt/Ci%C3%A2ncias/controlo-periodico-da-fuselagem-ajuda-a-evitar-acidentes-de-aviao-1540487>
- Sérgio M.O. Tavares, 'Segurança dos aviões', Programa Engenharia num Minuto, [www.fe.up.pt/engmin](http://www.fe.up.pt/engmin), Oct. 5, 2012  
[http://paginas.fe.up.pt/~engmin/index.php?option=com\\_k2&view=item&id=357:seguran%C3%A7a-dos-avi%C3%B5es-05102012&Itemid=57](http://paginas.fe.up.pt/~engmin/index.php?option=com_k2&view=item&id=357:seguran%C3%A7a-dos-avi%C3%B5es-05102012&Itemid=57)

### Visitors

Among others, the following visited the experimental facilities of FEUP, IDMEC and INEGI available to the group:

- Chris Rodopoulos, Monash University, Australia, June 27, 2012
- Claudio Dalle Donne, EADS InnovationWorks, Metallic Technologies and Surface Engineering, München, Germany, June 27, 2012
- Dirk Schnubel, HZG, Germany, June 27, 2012
- Jeremy Doucet, School of Applied Science, Cranfield University, Cranfield, Bedford, UK, June 27, 2012
- Jerzy Komorowski, Institute for Aerospace Research, National Research Council Canada, June 27, 2012
- John Bouchard, The Open University, UK, July 26, 2012
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