

Curriculum Vitae

Prof. Enrique Mariano Castrodeza, D.Sc.

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Personal Information

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Summary

Bachelor of Industrial Engineering (Mechanical orientation) at National University of Comahue, Argentina (1996), M.Sc. in Metallurgical and Materials Engineering at Federal University of Rio de Janeiro, Brazil (1998) and D.Sc. in Metallurgical and Materials Engineering at Federal University of Rio de Janeiro, Brazil (2002). Researcher at Federal University of Rio de Janeiro, Brazil (2002-2006) and at Polytechnic of Milan, Italy (2007-2009). Associated Professor at University of Concepción, Chile (2008-2010), Adjunct Professor at Federal University of Rio de Janeiro since 2010 and Visiting Professor at Polytechnic of Milan since 2013. Has experience in Materials and Metallurgical Engineering, focusing on the experimental evaluation of fracture and fatigue properties of composite and metallic materials, as well as processing and mechanical characterization of cellular metals.

Formal Education

1998 – 2002: D.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro, Brazil. Advisor: Fernando Luiz Bastian.

1996 – 1998: M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro, Brazil. Advisor: Fernando Luiz Bastian.

1989 – 1996: Bachelor of Industrial Engineering (Mechanical Orientation), National University of Comahue, Argentina. Advisor: Juan Elias Perez Ipiña.

Professional Experience

Federal University of Rio de Janeiro (UFRJ), Brazil

2010 – Present: Full time Adjunct Professor. Disciplines taught (undergraduate level): EET101 Fracture of Materials; EET200 Introduction to Metallurgical Engineering; EET363 Materials for the Oil and Gas Industry. Disciplines taught (postgraduate level): COT744 Fracture of Materials; COT844 Elastic-plastic Fracture Mechanics; COT843 Selected Topics in Fracture Mechanics.

2002 – 2006: Full time Researcher.

1998 – 2002: Full time D.Sc. Student.

1996 – 1998: Full time M.Sc. Student.

Polytechnic of Milan (PoliMi), Italy

2013 – Present: Part time Visiting Professor. Department of Mechanical Engineering. Disciplines taught: 081300 Plastic Deformation of Metals.

2007 – 2008: Full time Researcher. Department of Mechanical Engineering/Fondazione Cariplo.

University of Concepción (UDEC), Chile.

2007 – 2010: Full time Associated Professor. Department of Materials Engineering. Disciplines taught (undergraduate level): Fracture and Fatigue of Materials; Processing of Ceramics, Polymers and Composites; Industrial Visits; Materials Engineering Projects. Disciplines taught (postgraduate level): Mechanical Behavior of Materials (Fracture and Fatigue part); Fracture and Fatigue of Materials.

West Zone State University (UEZO), Brazil

2006 – 2007: Part time Assistant Professor. Disciplines taught (undergraduate level): Materials Science.

Other Institutional Activities

2015 – Present: Deputy Head of Department of Metallurgical and Materials Engineering. COPPE/Federal University of Rio de Janeiro.

2012 – 2015: Representative of Department of Metallurgical and Materials Engineering in the COPPE/Federal University of Rio de Janeiro Senate.

2010 – Present: Head of the Laboratory of Fracture Mechanics, Department of Metallurgical and Materials Engineering. COPPE/Federal University of Rio de Janeiro.

Coordination of Research Projects

2013 – Present: Project PEMM 17429: Fracture Toughness of API Steels in Air and Sour Environments. Client: Tenaris Confab. COPPETEC Foundation/Federal University of Rio de Janeiro.

2013 – 2015: Project PEMM 17152: Fracture Toughness of Duplex Steel Flanges. Client: FMC Technologies. COPPETEC Foundation/Federal University of Rio de Janeiro.

2010 – 2012: CNPq 476837/2010-3 grant: Processing and Mechanical Characterization of Metal Foams. COPPE/Federal University of Rio de Janeiro.

2009 – 2010: DIUC 209.098.001-1.0 grant: Processing and Characterization of Copper Alloy Metal Foams. University of Concepción.

Areas of Expertise

- Materials and Metallurgical Engineering.
- Experimental Methodologies for Fracture and Fatigue Properties Evaluation of Metals and Composites.
- Processing and Mechanical Characterization of Cellular Metals.

Languages

- Spanish: Native Language.
- English: Comprehends Well, Speaks Reasonably, Reads Well, Writes Reasonably.
- Portuguese: Comprehends Well, Speaks Well, Reads Well, Writes Well.
- Italian: Comprehends Well, Speaks Well, Reads Well, Writes Reasonably.

Awards

2005: Award to one of the three best works in a poster session. 4th International Conference on Fracture of Polymers, Composites and Adhesives. Les Diablerets, Switzerland, European Structural Integrity Society ESIS, Technical Committee 4.

Articles in Scientific Journals

1. Alves de Araújo, A.; Bastian, F. L.; Castrodeza, E. M.; CTOD-R curves of the metal-clad interface of API X52 pipes clad with an Inconel 625 alloy by welding overlay. *Fatigue & Fracture of Engineering Materials & Structures*, 2016 (in press).
2. Finamore Gomes de Almeida, C.; Bastian, F. L.; Castrodeza, E. M.; Comparison of J-R curves and JC values of C(T) and M(T) specimens of bidirectional GLARE 3 5/4 0.3 fiber-metal laminates. *Engineering Fracture Mechanics*, v. 159, p. 79-89, 2016.
3. Gruttadauria, A.; Barella, S.; Mapelli, C.; Mombelli, D.; Castrodeza, E. M.; Production of 17CrMoV5-11 steel sponges utilising powder metallurgical replication technique with SiC as space holder. *Powder Metallurgy*, v. 59, p. 95-99, 2016.
4. Paiva Martins Fontes, O. H.; Bastian, F. L.; Castrodeza, E. M.; Crack growth resistance curves of GLARE 3 5/4 0.3 fiber-metal laminates at low temperature. *Fatigue & Fracture of Engineering Materials & Structures*, v. 38, p. 268-275, 2015.
5. Gruttadauria, A.; Barella, S.; Di Cecca, C.; Mombelli, D.; Mapelli, C.; Castrodeza, E. M.; Produzione di spugne di acciaio tramite metallurgia delle polveri. *La Metallurgia Italiana*, v. 5, p. 41-45, 2015.
6. Weiss, B. A.; Arneodo Larochette, P. P.; Bertolino, G. M.; Castrodeza, E. M.; Baruj, A.; Troiani, H. E.; Characterization and Comparative Study of Pseudo-Elastic Cu-Zn-Al Foams Synthesized by Two Different Methods. *Materials Science Forum*, v. 738-739, p. 172-176, 2013.
7. Mapelli, C.; Mombelli, D.; Gruttadauria, A.; Barella, S.; Castrodeza, Enrique M.; Performance of stainless steel foams produced by infiltration casting techniques. *Journal of Materials Processing Technology*, v. 213, p. 1846-1854, 2013.
8. Bertolino, G. M.; Gruttadauria, A.; Arneodo Larochette, P. P.; Castrodeza, E. M.; Baruj, A.; Troiani, H. E.; Cyclic pseudoelastic behavior and energy dissipation in as-cast Cu-Zn-Al foams of different densities. *Intermetallics*, v. 19, p. 577-585, 2011.

9. Castrodeza, E. M.; Gruttadauria, A.; Mapelli, C.; Mombelli, D.; Processing and Characterization of Dual Phase Steel Foams Featured by Different Pore Distribution. *Steel Research International*, v. 82, p. 918-925, 2011.
10. Neves Beltrão, M. A.; Castrodeza, E. M.; Bastian, F. L.; Fatigue crack propagation in API 5L X-70 pipeline steel longitudinal welded joints under constant and variable amplitudes. *Fatigue & Fracture of Engineering Materials & Structures*, v. 34, p. 321-328, 2011.
11. Mapelli, C.; Gruttadauria, A.; Mombelli, D.; Castrodeza, E. M.; Produzione e caratterizzazione di schiume metalliche in acciaio dual phase. *La Metallurgia Italiana*, v. 7-8, p. 9-16, 2011.
12. Bertolino, G. M.; Arneodo Larochette, P. P.; Castrodeza, E. M.; Mapelli, C.; Baruj, A.; Troiani, H. E.; Mechanical properties of martensitic Cu Zn Al foams in the pseudoelastic regime. *Materials Letters*, v. 64, p. 1448-1450, 2010.
13. Gruttadauria, A.; Mombelli, D.; Castrodeza, E. M.; Mapelli, C.; Processing and characterization of dual phase steel foam. *Matéria (UFRJ)*, v. 15, p. 182-188, 2010.
14. Castrodeza, E. M.; Mapelli, C.; Vedani, M.; Arnaboldi, S.; Bassani, P.; Tuissi, A.; Processing of Shape Memory CuZnAl Open-cell Foam by Molten Metal Infiltration. *Journal of Materials Engineering and Performance*, v. 18, p. 484-489, 2009.
15. Castrodeza, E. M.; Mapelli, C.; Processing of brass open-cell foam by silica-gel beads replication. *Journal of Materials Processing Technology*, v. 209, p. 4958-4962, 2009.
16. Neves Beltrão, M. A.; de Marco Filho, F.; Castrodeza, E. M.; Bastian, F. L.; Fatigue Behavior of Welded Joints of API 5L X-65 and X-70 Steels under Variable Amplitude Loading. *Soldagem & Inspeção*, v. 12, p. 133-140, 2007.
17. Castrodeza, E. M.; Werner Schneider, M. R.; Bastian, F. L.; Crack Resistance Curves of GLARE Laminates by Elastic Compliance. *Engineering Fracture Mechanics*, v. 73, p. 2292-2303, 2006.
18. Rodrigues Touça, J. M.; Castrodeza, E. M.; Bastian, F. L.; Estudo do comportamento em fratura de materiais compósitos para reparo de tubos de aço. *Tecnologia em Metalurgia Materiais e Mineração*, v. 3, p. 50-54, 2006.
19. Castrodeza, E. M.; Bastian, F. L.; Perez Ipiña, J. E.; Fracture Toughness of Unidirectional Fiber-Metal Laminates: Crack Orientation Effect. *Engineering Fracture Mechanics*, v. 72, n.14, p. 2268-2279, 2005.
20. Castrodeza, E. M.; Perez Ipiña, J. E.; Bastian, F. L.; Fracture Toughness Evaluation of Unidirectional Fibre Metal Laminates Using Traditional CTOD and Schwalbe

- (d5) Methodologies. *Engineering Fracture Mechanics*, v. 71, n.7-8, p. 1127-1138, 2004.
21. Castrodeza, E. M.; Bastian, F. L.; Perez Ipiña, J. E.; Residual Strength of Unidirectional Fibre Metal Laminates based on Jc Toughness of C(T) and SE(B) Specimens. Comparison with M(T) Test Results. *Fatigue & Fracture of Engineering Materials & Structures*, v. 27, n.10, p. 923-929, 2004.
 22. Castrodeza, E. M.; Bastian, F. L.; Perez Ipiña, J. E.; Critical Fracture Toughness, Jc and d5c, of Unidirectional Fibre-Metal Laminates. *Thin-Walled Structures*, v. 41, p. 1089-1101, 2003.
 23. Castrodeza, E. M.; Bastian, F. L.; Perez Ipiña, J. E.; Tenacidade à fratura de laminados fibra-metal. *Meturgia e Materiais*, v. 59, n.538, p. 634-635, 2003.
 24. Castrodeza, E. M.; Yawny, A.; Perez Ipiña, J. E.; Bastian, F. L.; Fracture Micromechanisms of Fibre Metal Laminates. In Situ SEM Observations. *Journal of Composite Materials*, v. 36, n.4, p. 387-400, 2002.
 25. Castrodeza, E. M.; Rodrigues Touça, J. M.; Perez Ipiña, J. E.; Bastian, F. L.; Determination of CTODc in Fibre Metal Laminates by ASTM and Schwalbe Methods. *Materials Research (Brazil)*, v. 5, n.2, p. 119-124, 2002.
 26. Castrodeza, E. M.; Perez Ipiña, J. E.; Bastian, F. L.; Experimental Techniques for Fracture Instability Toughness Determination of Unidirectional Fibre-Reinforced Metal Laminates. *Fatigue & Fracture of Engineering Materials & Structures*, v. 25, n.11, p. 999-1008, 2002.
 27. Bertolino, G. M.; Castrodeza, E. M.; Perez Ipiña, J. E.; Aprea, J. L.; Meyer, G.; Evaluación de la Susceptibilidad a la Fragilización por Hidrógeno de un Acero de Uso Estructural (ASTM 503 Cl 4). *Matéria (UFRJ)*, v. 2, n.1, p. 1-10, 1997.

Complete works published in proceedings of conferences (since 2010)

1. Lara Melcher, P. J.; Castrodeza, E. M.; 2013, Beijing. Proceedings of ICF13. Beijing: The Chinese Society of Theoretical and Applied Mechanics, 2013. v. 1. p. 1-10.
2. Weiss, B. A.; Arneodo Larochette, P. P.; Bertolino, G. M.; Castrodeza, E. M.; Baruj, A.; Troiani, H. E.; 2012, Valparaíso. Proceedings of 12 Binational Congress on Materials and Metallurgy, 2012. v. 1. p. 1-10.
3. Weiss, B. A.; Arneodo Larochette, P. P.; Bertolino, G. M.; Castrodeza, E. M.; Baruj, A.; Troiani, H. E.; 2012, Saint-Petersburg. Proceedings of ESOMAT 2012, 2012. v. 1. p. 1-5.

4. Mombelli, D.; Mapelli, C.; Castrodeza, E. M.; Barella, S.; Gruttadauria, A.; Baldizzone, C.; 2011, Maastricht. Proceedings of Stainless Steel World Conference 2011. Zutphen: KCI Publishing B.V., 2011. v. 1.
5. Gruttadauria, A.; Castrodeza, E. M.; Mapelli, C.; Mombelli, D.; 2011, Busan. Proceedings of 7th International Conference on Porous Metals and Metallic Foams. Busan: MetFoam 2011, 2011. v. 1.
6. Gruttadauria, A.; Castrodeza, E. M.; Mapelli, C.; Mombelli, D.; 2011, Busan. Proceedings of 7th International Conference on Porous Metals and Metallic Foams. Busan: MetFoam 2011, 2011. v. 1.
7. Mapelli, C.; Gruttadauria, A.; Mombelli, D.; Castrodeza, E. M.; 2010, Peschiera del Garda. Proceedings of 2nd SHSS Conference, 2010. v. 1.
8. Viñas Muñoz, A. O.; Mapelli, C.; Castrodeza, E. M.; 2010, Campos do Jordão. Proceedings of 19 CBECiMat, 2010. v. 1. p. 6731-6738.
9. Mapelli, C.; Gruttadauria, A.; Mombelli, D.; Castrodeza, E. M.; 2010, Brescia. Proceedings del 33 Convegno Nazionale AIM. Brescia: AIM, 2010. v. 1. p. 1-11.
10. Mapelli, C.; Castrodeza, E. M.; Nicodemi, W.; Gruttadauria, A.; Mombelli, D.; 2010, Beaune. Proceedings of Duplex Stainless Steels Conference & Exhibition. Beaune: Duplex Stainless Steels Conference & Exhibition, 2010. v. 1. p. 1-7.

Patents

1. Castrodeza, E. M.; Mapelli, C.; Method for producing open-pore metal foam, involves producing molten metal material, infiltrating molten metal material into grouping of solid particles having solid to liquid transformation temperature in above specified range. 2008, Italy, Register Number: WO2009/144563, World Intellectual Property Organization.

Participations in Judging Commissions' Boards

Adjunct Professor Selection

2. Castrodeza, E. M.; Santos Pinheiro, M.A.; Campos Amico, S. 2015. Polytechnic Institute of the State University of Rio de Janeiro, Nova Friburgo, Brazil.
3. Castrodeza, E. M.; de Araújo Calado, V. M.; Martins Sampaio, E. 2015. Polytechnic Institute of the State University of Rio de Janeiro, Nova Friburgo, Brazil.
4. Castrodeza, E. M.; Lima Sobrinho, L.; Silva Nóbrega, M. M.; Barbosa Sobrinho, A. A. 2013. Federal University of Ceará, Brazil.

Academic Advisory

Academic Advisory - current

Master's Thesis

1. Leandro Martins Morani. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
2. Daniel Correia Freire Ferreira (Petrobras). M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
3. Almir Sobral Monteiro da Silva (Petrobras). M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro (*to be concluded on 15 September 2016*). Advisor.
4. Vanessa Dreilich Moreira Pinto (FMC Technologies). Dissertation, M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.

Ph.D. Thesis

1. Egon Rolf Delgado Ramírez. Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
2. Svetlana Nikolaevna Magalhães Ferreira. Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
3. Ingrid Braun Poloponsky (General Electric). Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
4. Bruna Brito Freitas. Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
5. Camila Finamore Gomes de Almeida. Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
6. Jorge Adam Cleto Cohn (Gerdau Açominas). Ph.D. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-advisor.

Academic Advisory - concluded

Master's Thesis

1. Pablo Javier Lara Melcher. 2014. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.

2. Renato Alonso Barboza Acevedo. 2013. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
3. Rodrigo Leite Mazoni. 2013. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Advisor.
4. Monica Luiz Vicente Julio da Silva. 2013. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
5. Renato d'Andrea Vale (Petrobras). 2011. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
6. Camila Finamore Gomes de Almeida. 2007. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
7. Andrés Alberto Buschiazzi. 2006. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
8. Marcelo Augusto Neves Beltrão. 2005. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
9. Márcia Regina Werner Schneider. 2004. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
10. Gustavo de Queiroz Chaves. 2003. M.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.

Ph.D. thesis

1. Aldecir Alves de Araújo (CEFET Rio de Janeiro). 2016. D.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.
2. Otávio Henrique Paiva Martins Fontes (Brazilian Navy). 2014. D.Sc. in Metallurgical and Materials Engineering, COPPE/Federal University of Rio de Janeiro. Co-Advisor.

Monography of Specialization

1. Daoud Marouan Lmtiui. 2016. Monography in Metallurgical and Materials Engineering, Federal University of Rio de Janeiro/Universitat Politècnica de Catalunya. Advisor.
2. Andrea Mora. 2014. Monography in Materials Engineering, Polytechnic of Milan. Co-Advisor.

3. Stefano Vigentini & Alessandro Donadoni. 2008. Monography in Materials Engineering, Polytechnic of Milan. Co-Advisor.

Works of completion for Graduation

1. João Teixeira Oliveira de Menezes. 2015. Course Conclusion Paper in Materials Engineering, Federal University of Rio de Janeiro. Advisor.
2. Thiago Mesquita Simões. 2014. Course Conclusion Paper in Metallurgical Engineering, Federal University of Rio de Janeiro. Advisor.
3. Mariana da Silva Guimarães. 2013. Course Conclusion Paper in Petroleum Engineering, Federal University of Rio de Janeiro. Advisor.
4. Marie Caroline Kama Ethom. 2013. Course Conclusion Paper in Petroleum Engineering, Federal University of Rio de Janeiro. Advisor.
5. Leandro Martins Morani. 2013. Course Conclusion Paper in Metallurgical Engineering, Federal University of Rio de Janeiro. Advisor.
6. Ian Pinto Martins. 2012. Course Conclusion Paper in Metallurgical Engineering, Federal University of Rio de Janeiro. Advisor.

Rio de Janeiro, Brazil, 13 September 2016.