



ENRICO TROIANI, PHD

RESEARCH OBJECTIVES

Fatigue and Damage Tolerance in Aircraft Structures: novel technologies and materials for the improvement of the fatigue performances

EDUCATION

PhD IN AEROSPACE ENGINEERING

POLYTECHNIC UNIVERSITY OF MILAN – UNIVERSITY OF PISA, ITALY
NOVEMBER 1996 – FEBRUARY 2000

Research: A numerical model for the evaluation of delamination behavior based on the Strain Energy Release Rate (SERR) has been developed. The results have been compared with experimental tests on a CFRP non-symmetrical sandwich with Nomex core. Under fatigue loads, the delamination reaches a stable condition. The analysis showed that the propagation is strongly influenced by local instability phenomena and is therefore necessary to consider the different opening mode contributions to the SERR. Propagation threshold diagrams have been developed through an experimental mixed mode test campaign.

Thesis title: *An Energetic Criterion for the Study of Delamination Arrest in Composite Materials*

MSc IN AEROSPACE ENGINEERING

UNIVERSITY OF PISA, ITALY
APRIL 1996

Research: The fatigue life of stiffened sheets with multiple side damage (collinear array of cracks) has been evaluated and the Stress Intensity Factor is obtained by an analytical approach. A closed form solution has been developed by the theory of complex variable functions. The results have been compared with a Finite Element Method software (MSC/NASTRAN) and an approximate method (Compound Functions).

Thesis title: *Stress Intensity Factor evaluation in stiffened sheets with multiple side damage: an application of the complex variable functions theory*

RESEARCH EXPERIENCE

ASSISTANT PROFESSOR

UNIVERSITY OF BOLOGNA, ITALY
JULY 2001 – TO PRESENT

Main research topics:

- Development and evaluation of Structural Health Monitoring (SHM) systems for the aerospace industry;
- Damage Tolerance in CFRP Structures - Numerical and Experimental Analysis of Low Energy Near Edge Impacts;
- Debonding and crack growth in adhesively bonded joints;

- Laser shock peening on aluminum alloys components for airframe applications;
- Unmanned aerial vehicles structural design;
- Microsatellite development, structural design

SCIENTIFIC COORDINATOR

MASTERLAB, UNIVERSITY OF BOLOGNA, ITALY

OCTOBER 2008 – TO PRESENT

MaSTeRLab is the Materials, Structures and Technology Research Laboratory of the University of Bologna, Forlì Campus. This is a research group in the field of innovative materials, structures and technologies to get together the skills available, at the then II Faculty of Engineering, in the aeronautical, automotive and shipbuilding sectors.

POST DOC RESEARCHER

DEPT. AEROSPACE ENGINEERING, UNIVERSITY OF PISA, ITALY

JULY 2000 – JUNE 2001

Development of a Multi-Disciplinary Optimization Software for Non-Conventional Aircraft Configurations”; the research subject is the multidisciplinary optimization and preliminary design of a biplane transport aircraft with opposite swept wings connected in a box wing configuration. Work carried out in collaboration of a set of Italian universities and EADS Germany

POST DOC RESEARCHER

DEPT. AEROSPACE ENGINEERING, UNIVERSITY OF PISA, ITALY

DECEMBER 1999 – JUNE 2000

Evaluation of Mixed Mode delamination propagation and Compression After Impact behavior in composite materials; experimental test campaign and finite elements analyses for the interlaminar fracture toughness of carbon/epoxy systems within the framework of EU FP6 project.

RESEARCH AND INDUSTRIAL EXPERIENCE

My research and academic experience have always been combined with my part time working experience in industry and government research institutes

SCIENTIFIC COORDINATOR OPERATING UNIT AERONAUTICS, AERODYNAMICS AND PROPULSION

CIRI - AEROSPACE

NOVEMBER 2019 – TO PRESENT

The mission of CIRI Aerospace is to promote the development of knowledge, expertise and research services for companies and research entities operating in the sectors of aeronautics, space, energy systems, advanced materials and mechanical systems, sensors technologies, nautical and ground transportation. The activities are organized in research projects that can be funded by companies or by supported research programs, preferably in collaboration with companies.

RESEARCH GRANT

AIRBUS GROUP - AIRBUS DEFENCE AND SPACE GMBH MUNCHEN – GERMANY

JUNE 2014 – JUNE 2015

REsidual Stress Engineering Tool (RESET) project: Research activity on the numerical evaluation of residual stresses induced with Laser Shock Peening process in aerospace structures.

WINNER OF THE SPINNER 2013 GLOBAL GRANT

CIRI - AEROSPACE

JANUARY 2013 – DECEMBER 2013

"Interventions for human resources qualification in the research and technological innovation sectors", this is the program of the Emilia-Romagna Region established to promote the upgrade and qualification of knowledge and competences of people operating in R&D, technology transfer and innovation. The iLaser group promoted the transfer knowledge of Laser Shock Peening Technology for the improvement of the fatigue behavior of metallic structures.

SCIENTIFIC COORDINATOR OPERATING UNIT UNIVERSITY OF BOLOGNA

CLEAN SKY; FP7 CSJU-GAM-GRA-2008-001: GREEN REGIONAL AIRCRAFT ITD

JUNE 2008 – JUNE 2015

Inside the WP 1.4.1 Low Weight Configurations, development of numerical tool for the weight reduction in composite wings.

CO-FOUNDER

ALMASpace SrL

JULY 2007 – DECEMBER 2013

University spin-off company, dedicated to the design, manufacture and operation of low-cost, high-quality space systems. Web site: www.almaspace.com.
Employees at 01/10/2013: 14

TEACHING AND SUPERVISION EXPERIENCE

ASSISTANT PROFESSOR

UNIVERSITY OF BOLOGNA, ITALY

JULY 2001 – TO PRESENT

Since 2001, I teach the following Undergraduate/Graduate Courses:

MSc AEROSPACE ENGINEERING, UNIVERSITY OF BOLOGNA, ITALY

SEPTEMBER 2013 – TO PRESENT

Aerospace Structures and Damage Tolerance (120 hrs)

SEPTEMBER 2008 – MAY 2013

Fatigue and Damage Tolerance (60 hrs)

SEPTEMBER 2001 – MAY 2013

Aerospace Structures and Materials (90 hrs)

BSc AEROSPACE ENGINEERING, UNIVERSITY OF BOLOGNA, ITALY

SEPTEMBER 2014 – TO PRESENT

Aerospace Design (90 hrs)

SEPTEMBER 2013 – MAY 2017

Aerospace Design Laboratory (30 hrs)

SEPTEMBER 2010 – MAY 2013

Aerospace Technologies (60 hrs)

Since 2001, I supervise BSc, MSc and PhD candidates performing research in Composite Materials Damage Tolerance, Structural Health Monitoring and Advanced Techniques for the improvement of performances in metallic structures.

PhD Theses Supervised by Dr. Troiani at University of Bologna

1. Mr. Francesco Falcetelli - Status: Work in Progress

Ph.D. Thesis: Structural Health Monitoring.

November 2019 - to present.

2. Mr. Nicola Zavatta - Status: Completed

Ph.D. Thesis: Fatigue and Damage Tolerance of Bonded Joints.

November 2017 – April 2020

3. Ms. Maria Pia Falaschetti - Status: Completed

Ph.D. Thesis: Damage Tolerance of Composite Structures.

November 2014 – April 2017

4. Mrs. Vjola Ristori - Status: Completed

Ph.D. Thesis: Fatigue of Composite Structures.

November 2014 – April 2017

5. Ms. Sara Taddia - Status: Completed

Ph.D. Thesis: Laser Shock Peening in Aircraft Structures.

November 2012 – April 2015

6. Mr. Gianluca Molinari - Status: Completed

Ph.D. Thesis: Damage Tolerance of fuselage panels.

November 2010 - April 2013

7. Ms. Francesca Garattoni - Status: Completed

Ph.D. Thesis: Crashworthiness of Composite Structures.

November 2008 – April 2011

8. Mr. Ivan Meneghin - Status: Completed

Ph.D. Thesis: Bonded Structures For Enhanced Damage Tolerant Pressurized Fuselages.

November 2006 – April 2009

9. Mrs. Valentina Virgili - Status: Completed

Ph.D. Thesis: Shape Memory Alloys.

November 2005 – April 2008

Selection of the most important MSc Theses Supervised by Dr. Troiani at University of Bologna in the last 5 years.

Davide Biagini – Status: Completed

Supervisors: Dr. Calvin Rans, Dr. Enrico Troiani

M.Sc. Thesis: Damage Tolerance of Lattice Structures via progressive failure approach

TU Delft & University of Bologna, September 2019 – March 2020

Beatrice Maiwa Kiiru - Status: Completed

Supervisors: Dr. Julie Teuwen, Dr. Enrico Troiani

M.Sc. Thesis: Effects Of Curing On The Fracture Toughness Of Composite Materials

TU Delft & University of Bologna, April 2019 - October 2019

Cosmina Luchian - Status: Completed

Supervisors: Prof. Eduard Hryha, Dr. Enrico Troiani

M.Sc. Thesis: Defect formation in Electron Beam Melting processed Ni-base Superalloys

Chalmers University & University of Bologna, September 2018 - March 2019

Francesco Falcetelli - Status: Completed

Supervisors: Dr. Marcias Martinez, Dr. Enrico Troiani

M.Sc. Thesis: Modelling of a Pencil-Lead Break Acoustic Emission Sources using Time Reversal

Clarkson University & University of Bologna, December 2017 - October 2018

Nicolo Facciotto - Status: Completed

Supervisors: Dr. Enrico Troiani, Dr. Marcias Martinez

M.Sc. Thesis: Source Identification and Classification of Acoustic Emission Signals by a SHAZAM inspired pattern recognition algorithm.

Clarkson University & University of Bologna, September 2016 - March 2017

Nicola Zavatta - Status: Completed

Supervisors: Dr. Enrico Troiani, Prof. René Alderliesten

M.Sc. Thesis: Influence of adhesive thickness on adhesively bonded joints under fatigue loading.

TU Delft & University of Bologna, April 2015 – September 2015

EXTERNAL ASSESSOR

UNIVERSITY OF PRETORIA, SOUTHAFRICA

JUNE 2012 – JUNE 2016

Since 2012, collaboration within the Fatigue and Structural Mechanics courses for the assessment of the teaching activities. Supervision as external examiner of BSc, MSc and PhD candidates performing research in Structural Health Monitoring and Laser Shock Peening topics.

EXTERNAL ASSESSOR

UNIVERSITY OF WITWATERSRAND, JOHANNESBURG, SOUTHAFRICA

MAY 2014 – TO PRESENT

Collaboration within the Structural Mechanics courses for the assessment of the teaching activities. Supervision as external examiner of MSc and PhD candidates performing research in Laser Shock Peening and Friction Stir Welding topics.

BOOK CHAPTERS

Current or past students' names under Dr. Troiani supervision underlined.

E. Troiani, L.J. Hart-Smith, (2018) Backing-out composite lamina strengths from cross-ply testing, in: *Comprehensive Composite Materials II*, Amsterdam, Elsevier, pp. 119 - 130

N. Santopuoli, L. Seccia, **E. Troiani**, V. Virgilli, (2008) “Dispositivi a memoria di forma per la protezione di superfici affrescate: indagini microclimatiche, progetto, simulazioni e sperimentazione” in: “Pompei via dell'Abbondanza: ricerche, restauri e nuove tecnologie” (pp. 197 - 201), S.A. Curuni, N. Santopuoli editors, ISBN: 978-8861302259, Skira editor, Milano (Italy), November 2007

N. Santopuoli, L. Seccia, **E. Troiani**, V. Virgilli, (2005) “Utilizzo di materiali a Memoria di Forma per il restauro di superfici musive ed il consolidamento di paramenti murari”, Atti della giornata di Studio: Rilievo, Modellazione e Restauro di Murature antiche – Il caso dell'Insula del Centenario a Pompei. Bologna, 16 September 2005.

Chiarelli M., **Troiani E.**, (2000) “Closed form solution for stress intensity factors in an MSD stiffened panel with a review of different approaches to the problem”; in: “Non-linear Fracture and Damage Mechanics”, M.H. Aliabadi editor, WITpress, Southampton (UK), February 2000.

REFEREED PUBLICATIONS

Pascoe, J.A., Zavatta, N., **Troiani, E.**, Alderliesten, R.C. (2020) “The effect of bond-line thickness on fatigue crack growth rate in adhesively bonded joints”, *Engineering Fracture Mechanics*, 229, 106959

Kidane, B.S., **Troiani, E.**, (2020) “Static aeroelastic beam model development for folding winglet design”, *Aerospace*, 7(8), 106

- Falaschetti, MP, Rondina, F, Zavatta, N, Gragnani, L, Gironi, M, **Troiani, E**, Donati, L (2020) “Material Characterization for Reliable Resin Transfer Molding Process Simulation”, *Applied Sciences*, 10 (5), 1814
- Falaschetti, MP, Rondina, F, Donati, L, **Troiani, E**, (2020) “Influence of simulation parameters in the combined loading compression testing of CFRP specimens”, *Procedia Manufacturing*, 47, pp. 43–50
- Troiani, E.**; Zavatta, N., (2019) “The Effect of Laser Peening without Coating on the Fatigue of a 6082-T6 Aluminum Alloy with a Curved Notch”, *Metals*, 9(7), 728
- Troiani, E.** (2016) “Analytical evaluation of the Stress Intensity Factor in stiffened sheets with multiple side damage”, *AIMS Materials Science*, 3(4), pp. 1615-1622
- Taddia, S., **Troiani, E.** (2015) “Effect of Laser Shock Peening on the Fatigue Behavior of Thin Aluminum Panels”, *Materials Today: Proceedings*, 2(10), pp. 5006-5014
- Donati, L., **Troiani, E.**, Proli, P., Tomesani, L (2015) “FEM Analysis and Experimental Validation of Friction Welding Process of 6xxx Alloys for the Prediction of Welding Quality”, *Materials Today: Proceedings*, 2(10), pp. 5045-5054
- MP Falaschetti, M Scafè, **E Troiani**, V Agostinelli, S Sangiorgi (2015) “Experimental Determination of Compressive Residual Strength of a Carbon/epoxy Laminate after a Near-edge Impact”, *Procedia Engineering*, 109, 171-180
- Troiani, E.**, Falaschetti, M.P., Taddia, S., and Ceruti, A. (2015) "CFRP Crash Absorbers in Small UAV: Design and Optimization," *SAE Technical Paper* 2015-01-2461, doi:10.4271/2015-01-2461.
- M Scafè, G Raiteri, A Brentari, R Dlacic, **E Troiani**, MP Falaschetti (2014), “Estimate of compressive strength of an unidirectional composite lamina using cross-ply and angle-ply laminates”, *Fracture and Structural Integrity*, pp. 399-409
- E Troiani**, L Donati, G Molinari, R Di Sante (2014), “Influence of Plying Strategies and Trigger Type on Crashworthiness Properties of Carbon Fiber Laminates Cured through Autoclave Processing”, *Strojniški vestnik - Journal of Mechanical Engineering*, 60 (6), pp. 375-381
- D Glaser, C Polese, RD Bedekar, J Plaisier, S Pityana, B Masina, **E Troiani** (2014), “Laser shock peening on a 6056-T4 aluminium alloy for airframe applications”, *Advanced Materials Research*, 891, pp. 974-979
- R Di Sante, L Donati, **E Troiani**, P Proli (2014), “Reliability and accuracy of embedded fiber Bragg grating sensors for strain monitoring in advanced composite structures”, *Metals and Materials International*, 20 (3), pp.537-543
- R Di Sante, L Donati, **E Troiani**, P Proli (2014), “Evaluation of bending strain measurements in a composite sailboat bowsprit with embedded fibre Bragg gratings”, *Measurement*, 54, pp. 106-117
- Molinari, G.; Meneghin, I.; Melega, M.; **Troiani E.** (2012) “Parametric damage tolerance design of metallic aeronautical stiffened panels “, *Aeronautical Journal*, 116, Issue 1182, pp. 815-831
- G. Ivetic, **E. Troiani**, I. Meneghin, G. Molinari, J.L. Ocana, M. Morales, J. Porro, A. Lanciotti, V. Ristori, C. Polese, J. Plaisier, A. Lausi. (2012) “Fatigue in Laser Shock Peened Open-hole

Thin Aluminium Specimens”, *Materials Science And Engineering A - Structural Materials Properties Microstructure And Processing*, 534, pp. 573-579.

G. Ivetic, I. Meneghin, **E. Troiani**. (2011). “Numerical analysis of Laser Shock Peening as a process for generation of compressive residual stresses in open hole specimens”, *Materials Science Forum*, 681, pp. 267 - 272.

I. Meneghin, G. Ivetic, **E. Troiani**. (2011). “Numerical Analysis of Residual Stress Effect on Fatigue Crack Propagation in Bonded Aeronautical Stiffened Panels”, *Materials Science Forum*, 681, pp. 236 - 242.

P. Tortora, **E. Troiani**, (2005) “The Microsatellite Research Program at the Università di Bologna”, *IAA – Acta Astronautica*, 56, pp.696-704 – Elsevier Press

L. Ceschini, A. Morri, R. Cocomazzi, **E. Troiani**, (2003) “Room and high temperature tensile tests on the AA6061/20vol.%Al₂O₃p and AA7005/10vol.%Al₂O₃p composites”; *Materialwissenschaft Und Werkstofftechnik*, 34, 1-5, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany

CONFERENCE PUBLICATIONS

Zavatta N.; **Troiani E.**, (2020) “A numerical approach to the disbonding mechanism of adhesive joints”, in: *Lecture Notes in Mechanical Engineering*, Springer, pp. 360 - 371 (Proceedings of the 30th Symposium of the International Committee on Aeronautical Fatigue, ICAF 2019, pol, 2019)

Nicolas Venturini, Marcias Martinez, **Enrico Troiani**, Maria Barroso-Romero, Francesco Falcetelli (2019) “Experimental Broadband Signal Reconstruction for Plate-like Structures”, *Proceedings of ICAST2019: 30th International Conference on Adaptive Structures and Technologies*, Montreal, QC, Canada, October 7-11, 2019

Francesco Falcetelli, Maria Barroso Romero, Shashank Pant, **Entico Troiani**, Marcias Martinez, (2018) “Modelling of Pencil-Lead Break Acoustic Emission Sources using the Time Reversal Technique”, *9th European Workshop on Structural Health Monitoring*, Manchester, United Kingdom, July 10 - 13

Rondina, F.; Donati, L.; **Troiani, E.**, (2017) “A review of experimental and numerical activities on composites crashworthiness performed at the University of Bologna”, *Aerospace Structural Impact Dynamics International Conference ASIDIC 2017*, National Center for Aviation Training (NCAT) in Wichita, Kansas, USA, October 17-19, 2017

Vjola Ristori, **Enrico Troiani**, Maria Pia Falaschetti, Goran Ivetic, (2017) “Damage Tolerance in CFRP Structures - Numerical and Experimental Analysis of Low Energy Near Edge Impacts”, *35th ICAF Conference and 29th ICAF Symposium (ICAF 2017)*, pp. 1 – 9, Nagoya, Japan, 5-9 June 2017

Maria Pia Falaschetti, Calvin Rans, **Enrico Troiani**, (2017), “On the application of metal foils for improving the impact damage tolerance of composite materials”, *35th ICAF Conference and 29th ICAF Symposium (ICAF 2017)*, pp. 1 – 9, Nagoya, Japan, 5-9 June 2017

Facciotto, N., Martinez, M., **Troiani, E.** (2017) “Source identification and classification of acoustic emission signals by a SHAZAM inspired pattern recognition algorithm”, *Structural Health Monitoring 2017: Real-Time Material State Awareness and Data-Driven Safety Assurance - Proceedings of the 11th International Workshop on Structural Health Monitoring, IWSHM 2017*

Vjola Ristori; Maria Pia Falaschetti; **Enrico Troiani**; Marco Montemurro; André Baeten; Goran Ivetic; Gianluca Molinari, (2015) “Damage Tolerance Assessment of Near Edge Impacts in CFRP Structures”, 34th Conference and 28th Symposium of the International Committee on Aeronautical Fatigue and Structural Integrity, Helsinki, Finland, 1-5 June 2015

Enrico Troiani; Sara Taddia; Ivan Meneghin; Gianluca Molinari; Claudia Polese, (2015) “Effect of LSP Generated Residual Stresses on Fatigue Crack Propagation in Thin Panels”, 34th Conference and 28th Symposium of the International Committee on Aeronautical Fatigue and Structural Integrity, Helsinki, Finland, 1-5 June 2015

S Gubinelli, E Paolini, A Giorgetti, M Mazzotti, A Rizzo, **E Troiani**, M Chiani (2014), “An ultra-wideband radar approach to nondestructive testing” Ultra-WideBand (ICUWB), 2014 IEEE International Conference, pp. 303-308

Ghelli, D., Cantarini, V., **Troiani, E.** (2014), “Influence of thermal cycling on the low velocity impact response of CFRP laminates”, 16th European Conference on Composite Materials, ECCM 2014, Seville (Spain), 22-26 Jun 2014

Di Sante, R.; Donati, L.; **Troiani, E.** (2013) “Strain Measurements of a Sailboat Bowsprit Cured in Autoclave by Means of Embedded Fibre Bragg Gratings” Proceedings of 9th International Conference On Composite Science And Technology: 2020 - Scientific And Industrial Challenges, Naples (Italy), 24-26 Apr 2013

Troiani, E.; Donati, L.; Di Sante, R.; Proli, P. (2013) “Thermal Aging of CFRP Composites for Marine and Aeronautical Applications” Proceedings of 9th International Conference On Composite Science And Technology: 2020 - Scientific And Industrial Challenges, Naples (Italy), 24-26 Apr 2013

M Scafè, M Labanti, A Coglitore, G Raiteri, R Dlacic, **E Troiani** (2013) “Experimental determination of compressive strength of an unidirectional composite lamina: indirect estimate by Using Back-out Factor (BF)”, Proceedings of IGF XXII Conference, Roma (Italy)

G. Ivetic, **E. Troiani**, I. Meneghin, G. Molinari, J.L. Ocana, M. Morales, J. Porro, A. Lanciotti, V. Ristori, J. Plaisier, A. Lausi. (2011). “The effect of sequence of operations on fatigue life of LSP treated open-hole aluminium specimens”, Proceedings of the 3rd International Conference on Laser Peening. 3rd International Conference on Laser Peening. Osaka, Japan. 11-14 October 2011. OSAKA.

G. Ivetic, **E. Troiani**, I. Meneghin, G. Molinari, J.L. Ocaña, M. Morales, J. Porro, A. Lanciotti, V. Ristori, C. Polese, A. Venter. (2011). “Characterisation of fatigue and crack propagation in Laser Shock Peened open hole 7075-T73 aluminium specimens”. ICAF 2011 Structural Integrity: Proceedings of the 26th Symposium of the International Committee on Aeronautical Fatigue. Montreal, Canada. 1-3 June 2011. (pp. 855 - 866). ISBN: 978-9400716636.

I. Meneghin, G. Molinari, G. Ivetic, **E. Troiani**. (2011). “Damage tolerance of adhesive bonded stiffened panels: experimental and analytical investigation of the fatigue crack propagation underneath the stringers”- ICAF 2011 Structural Integrity: Proceedings of the 26th Symposium of the International Committee on Aeronautical Fatigue. Montreal, Canada. 1-3 June 2011. (pp. 771 - 783). ISBN: 978-9400716636

N. Gioia, G. Molinari, I. Meneghin, G. Ivetic, **E. Troiani**. (2011). “Fatigue crack propagation through adhesively bonded stiffened panels: a model to describe the skin crack behavior underneath the stiffeners”. Proceedings of the International Conference of the European

Aerospace Societies 2011. Venezia. 24-28 October 2011. (pp. 460 - 464). ISBN: 9788896427187.

R. Palazzetti, A. Zucchelli, L. Donati, G. Minak, **E. Troiani**, C. Gualandi, M. L. Focarete, M. Parente. (2011). "Reinforcements of CFRP laminates through polymer nanofibers produced by means of electrospinning process". Proceedings of the International Conference of the European Aerospace Societies 2011. Venezia. 24-28 October 2011. (pp. 815 - 822). ISBN: 978-88-96427187.

S. Crestani, G. Ivetic, I. Meneghin, **E. Troiani**. (2011). "The effect of laser shock peening on fatigue behaviour of aluminium alloy 6082-T6". Proceedings of the International Conference of the European Aerospace Societies 2011. Venezia. 24-28 October 2011. (pp. 1036 - 1040). ISBN: 9788896427187.

F. Garattoni, **E. Troiani**. (2010). "An Experimental Method And Numerical Simulation For Composite Materials Energy Absorption Determination". Proceedings of the 27th International Congress of the Aeronautical Sciences. ICAS2010 - 27th International Congress of the Aeronautical Sciences. Nice, France. 19-24 September 2010. (pp. 1 - 4).

F. Garattoni, G. Molinari, **E. Troiani**. (2010). "Development of a reliable test to support and validate a numerical model of progressive damage for composite materials". Proceedings of the 2nd Aircraft Structural Design Conference. 2nd Aircraft Structural Design Conference. London, UK. 26 Ottobre 2010. (pp. 1 - 13). LONDON: Royal Aeronautical Society.

G. Ivetic, I. Meneghin, **E. Troiani**. (2010). "Numerical analysis of Laser Shock Peening as a process for generation of compressive residual stresses in open hole specimens". Proceedings of the 8th European Conference on Residual Stresses (ECRS8). Riva del Garda (TN). 26-28 June 2010. (pp. 1 - 6).

I. Meneghin, G. Ivetic, **E. Troiani**. (2010). "Analysis of Residual Stress Effect on Fatigue Crack Propagation in Bonded Aeronautical Stiffened Panels". Proceedings of the 8th European Conference on Residual Stresses (ECRS8). Riva del Garda. 26-28 June 2010. (pp. 1 - 7).

G. Molinari, I. Meneghin, M. Melega, **E. Troiani**. (2010). "Parametric damage tolerant design of advanced aeronautical stiffened panels by means of LEAF analytical tool". Proceedings of the 2nd Aircraft Structural Conference. 26 October 2010. (pp. 1 - 10). LONDON, Royal Aeronautical Society.

D. Bruzzi, A. Tambini, A. Tellini, **E. Troiani**. (2008) "Improvements in Materials Technologies for Low-cost Microsatellites Structures: from Aluminum to Carbon Fiber" 59th International Astronautical Congress, Glasgow (UK), September 29-October 3, 2008.

A. Ceruti, **E. Troiani**. (2008) "Design of an Innovative Propeller Shaft Bracket for Sailboat". Proceedings of the 1st Symposium on Multidisciplinary Studies of Design in Mechanical Engineering. Bertinoro – Italy, 26-28, June 2008 (pp. 33 - 34). ISBN: 88-901080-3-7.

A. Ceruti, **E. Troiani**. (2008) "Modelling and Optimization of a Propeller Shaft Bracket in Carbon Fiber for Sailboat", 20th Congreso Internacional de Ingenieria Grafica. Ingenieria Grafica: Imaginar + Desarrollar. Valencia, Spain. 4-6 June 2008.

G.M. Saggiani, F. Persiani, A. Ceruti, P. Tortora, **E. Troiani**, F. Giulietti, S. Amici, M.F. Buongiorno, G. G. Bentini, M. Bianconi, A. Cerutti, A. Nubile, S. Sugliani, M. Chiarini, G. Pennestrì, S. Petrini, R. Guzzi, (2007) "UAV System Development for the Monitoring and Study of Volcanic and Natural Hazard Events", Proceedings of the Remote Sensing and

Photogrammetry Society Annual Confence 2007 “Challenges for earth observation - scientific, technical and commercial”, Newcastle University, England, 11-14 September 2007.

E. Troiani, D. Bruzzi, S. Gianotti, P. Tortora, (2006) “Almasat Microsatellite Structural Analysis: Finite Elements Techniques, Vibration Tests and Results Correlation”, 57th International Astronautical Congress, Valencia (Spain), 2-6 October 2006

M. Chiarelli, **E. Troiani, (2005)** “A General Formulation of the Potential Energy Release Rate for a Three-Dimensional Hyperelastic Body containing a Plane Crack”, 11th International Conference on Fracture, Turin (Italy), March 20-25 2005

E. Troiani, P. Tortora, G. Piraccini, M. Tappi, (2004) “Finite Element Modelling for static and Dynamic analyses of a Low-cost Microsatellite Platform”, 55th International Astronautical Congress, Vancouver (Canada), 4-8 October 2004

P. Tortora, **E. Troiani, (2003)** “The Microsatellite Research Program at the Università di Bologna”, 54th International Astronautical Congress, Bremen (Germany), September 29 – October 3 2003

FURTHER PROFESSIONAL ACTIVITIES

TRAINING MANAGER

ISAERS - EASA PART 147 TRAINING AND EXAMINATION ORGANISATION
JANUARY 2013 – TO PRESENT

ISAERS is an EASA Part 147-approved training and examination organization with basic courses for Airline Maintenance Technicians Cat. B3 (piston-engine non-pressurized airplanes) and Cat. B1.1 (turbine engine airplanes).

GROUND INSTRUCTOR

PROFESSIONE VOLARE FLIGHT TRAINING ORGANIZATION
JUNE 2002 – TO PRESENT

Professione Volare is an EASA-approved flight school with courses for ATPL(A), Airline Transport Pilot License. Basic course on aircraft structures, materials, powerplants and general knowledge.

AWARDS

2013, **Royal Aeronautical Society Bronze Medal**, awarded for the paper "G.Molinari, I.Meneghin, M.Melega, E.Troiani (2012). Parametric Damage Tolerance Design of Metallic Aeronautical Stiffened Panels. THE AERONAUTICAL JOURNAL, vol. 116, p. 815-831, ISSN: 0001-9240". Award presented at the Sopwith Lecture held at the Society London, UK site on July 2013

2008, Acta Astronautica - Elsevier, Award for **Most Cited Author** 2005-2008 for the paper "P. Tortora, E. Troiani (2005). The microsatellite research program at the Università di Bologna. Acta Astronautica, vol. 55 (7), p. 696-704, ISSN: 0094-5765"

LANGUAGES

- Fluent in spoken and written English, Italian and French
- Intermediate level of Spanish
- Basic level of German and Dutch

Forlì 1/10/2021

