

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome BERNARDO
Cognome ZUCCARELLO
Recapiti 3209242290
E-mail bernardo.zuccarello@unipa.it

FORMAZIONE TITOLI

BERNARDO ZUCCARELLO IS PROFESSOR OF MECHANICAL ENGINEERING AT UNIVERSITY OF PALERMO. HE IS/WAS

1) Winner of the Degree Prize "Prof. G. Manzella" for the best dissertation in the field of Experimental

Mechanics, academic year 1991/92.

2) Winner of the National Award "AIAS - Capocaccia" for the best paper presented at the XXII National

Congress AIAS (1993), with the contribution entitled "Effetto della Plasticità nella Misura delle Tensioni

Residue col Metodo della Cava".

3) Winner of the National Award "AIAS - Capocaccia" for the best paper presented at the XXV AIAS Conference

- International Conference on Material Engineering (1996), with the contribution entitled "Step Optimisation

in the Residual Stress Analysis by the Hole-Drilling Method".

4) Founding member of the Spin-Off company "ProCube SRL", devoted to the industrial development of

innovative components made by using modern composite materials (website www.pro-cube.it). The society

has developed innovative composite components for yachts, involving various shipyards such AICON

YACHTS SPA etc. It has received several commissions from important shipyards, employing up to 15

engineers and technicians.

5) Patent No. 0001386079 entitled "Meccanismo composito irreversibile senza giochi per movimentazione azimutale di inseguitori solari" In practice, it is the patent of an innovative biaxial solar tracker. The patent has been advantageously exploited by the "SABER Technology SRL" company, that has produced a thousand solar trackers sold all over the country. They allow to install about 5 MW of photovoltaic plans, including solar concentration. This activity has lead to a business volume of about 15 Meuro.

6) Founding member of the "SABER TECHNOLOGY SRL" company (2006), which has exploited the above mentioned Patent No. 0001386079, by manufacturing, marketing and sale of the innovative biaxial solar trackers (see website www.sun-keeper.it). The company, which operates in the field of Renewable Energy since 2007, has had an average annual business volume of about 2.5 Meuro, and employs a staff of about 20 units. Recently it has extended its activity on the field of plants of Renewable Energy from Biomasses.

7) Promoter of the Temporary Association (ATS, constituted on 23/06/2011) between the University of Palermo, the Research Consortium on Biological Risk in Agriculture (CORIBIA), the Confagricoltura and several SMEs, in order to develop a program for the transfer of technology and the application of research results in the production of biofuel from agricultural waste. The ATS has received several funding from the Regional Govern.

POSTGRADUATE ACTIVITIES:

Degree in Mechanical Engineering (1991) by the voting of 110/110 cum laude.

Winner of the National Competition for Mechanical Engineers (1992), banished from the ENEL - National Power Electric Company (1st place in the national ranking).

Head of the "Non-Electrical and Environmental Measurements" team (1993-1996) of the ENEL National Service for Measurements and Testing (Rome, Italy)

Head of the "Fluid Machines and Vibration" team (1996-1999) of the ENEL National Service for Measurements and Testing (Rome, Italy).

Permanent component of the National Working Group of the ENEL - National Power Electric Company, with the special task "Guidelines for Testing in Large Electric Power Plants" (1993-1999).

Advisor of Pirelli SpA, for the planning of the Submarine Electrical Connection between Italy and Greece (1998), with the special task "Development of reliable predictive models for the actual electric field around the greek anode of Saiada".

TRAINING ACTIVITIES AND POSTGRADUATE RESEARCH:

Ph.D. in Mechanical Engineering (1995), University of Pisa (Italy).

Post- PhD course in Mechanical Engineering, Department of Mechanics of the University of Palermo (1996-1997).

Research Associate at the Department of Mechanics of the University of Palermo in the years 1995-1996.

Research Associate involved in the European BRITE EURAM (1998-1999) research program called ADPRIMAS (ADvanced concepts for primary Metallic Aircraft Structures); the research has been devoted on the development of automatic methods of photoelasticity and the photoelastic characterization of innovative materials used for three-dimensional models of aeronautical components, obtained by means of stereolithography. The results of this research work are summarized in the scientific report entitled "Photoelasticity: automated calibration of methods and materials."

Research Associate involved in the PRIN 1998 research program entitled "Automation in Photomechanics: photoelasticity and its application to fracture mechanics".

TEACHING AT UNIVERSITIES AND RESEARCH INSTITUTIONS:

Lecturer in "Mechanics of Composite Materials and Ceramics" - Degree Course on Mechanical Engineering and Aeronautical Engineering (9 CFU), from 2001 to the present (University of Palermo).

Author of the lecture notes entitled "Mechanical Design with Composite Materials", published on the website of the University of Palermo (<http://www.dima.unipa.it>). They have been requested from thousands undergraduates of almost all Italian universities, as well as from various industries operating in the field of PMCs such as Azimuth®, AICON YACHTS®, Coccinelle®, etc.

Lecturer in "Experimental Mechanics" - Degree Course on Mechanical Engineering and Aeronautical Engineering (9 CFU), from 2010 to the present (University of Palermo).

PLANNING AND COORDINATION OF MASTERS:

Designer and Coordinator of the Master "Progettazione, Tecnologie e Design per la Nautica da Diporto" (2007-2008), funded with European Funds by the Sicilian Region (POR 2000-2006) - Program: 199.IT.16.1.PO.0011 / 3.07/9.2.14/0320 (total amount € 432,580.00). The Master have involved prestigious Italian shipyards as Benetti-Ferretti Group SPA, Nuovi Cantieri Apuania SPA (ex Grimaldi), Rodriguez SPA, AICON YACHTS SPA, FASHION YACHTS SPA, Aprea Mare SRL etc., as well as ASSONAUTICA (Marine National Association) and distinguished naval designer such as Prof. Vallicelli (designer of Azzurra and many other boats that have received several famous international awards), Prof. Massimo Paperini of Studio Duck Design (designer of several boats that have received various national and international awards). The Master concluded successfully in July 2008, has enabled the most students to find work at various important shipyards.

Teaching in MASTERS:

Master on "COMPOSITE Materials" (funded by Italian Ministry of University, MIUR, Decree No. 1237, 25/06/2003, prot. 1171/361); professor of the module "Mechanical and Adhesive Joints" (2004).

Master on "INNOVATIVE MATERIALS FOR TRANSPORT" (Mitras program) implemented by the research consortium CETMA (involving important research institutes and industries as ENEA, AGIP, University of Lecce and Brindisi etc.); professor of the module "Micromechanics of Composites Materials."

Master on " Progettazione, Tecnologie e Design per la Nautica da Diporto"; professor of the "Introductory module" and the module "Material Composites for Nautics" (2008)

Master on "COMPOSITE MATERIALS and Applications" (program POR 2000-2006), financed by Sicilian Region and organized by IRES SpA; professor of the module "Mechanical Joints" (2007).

ORGANIZATION OF CONFERENCES:

Main organizer of the 40th National Congress of the Italian Association for Stress Analysis (AIAS), held in Palermo (Sicily, IT), on 7-10 September 2011.

ATTIVITA' DIDATTICA

TEACHING AT UNIVERSITIES AND RESEARCH INSTITUTIONS:

Lecturer in "Mechanics of Composite Materials and Ceramics" - Degree Course on Mechanical Engineering and Aeronautical Engineering (9 CFU), from 2001 to the present (University of Palermo).

Author of the lecture notes entitled "Mechanical Design with Composite Materials", published on the website of the University of Palermo (<http://www.dima.unipa.it>). They have been requested from thousands undergraduates of almost all Italian universities, as well as from various industries operating in the field of PMCs such as Azimuth®, AICON YACHTS®, Coccinelle®, etc.

Lecturer in "Experimental Mechanics" - Degree Course on Mechanical Engineering and Aeronautical Engineering (9 CFU), from 2010 to the present (University of Palermo).

PLANNING AND COORDINATION OF MASTERS:

Designer and Coordinator of the Master "Progettazione, Tecnologie e Design per la Nautica da Diporto" (2007-2008), funded with European Funds by the Sicilian Region (POR 2000-2006) - Program: 199.IT.16.1.PO.0011 / 3.07/9.2.14/0320 (total amount € 432,580.00). The Master have involved prestigious Italian shipyards as Benetti-Ferretti Group SPA, Nuovi Cantieri Apuania SPA (ex Grimaldi), Rodriguez SPA, AICON YACHTS SPA, FASHION YACHTS SPA, Aprea Mare SRL etc., as well as ASSONAUTICA (Marine National Association) and distinguished naval designer such as Prof. Vallicelli (designer of Azzurra and many other boats that have received several famous international awards), Prof. Massimo Paperini of Studio Duck Design (designer of several boats that have received various national and international awards). The Master concluded successfully in July 2008, has enabled the most students to find work at various important shipyards.

Teaching in MASTERS:

Master on "COMPOSITE Materials" (funded by Italian Ministry of University, MIUR, Decree No. 1237, 25/06/2003, prot. 1171/361); professor of the module "Mechanical and Adhesive Joints" (2004).

Master on "INNOVATIVE MATERIALS FOR TRANSPORT" (Mitras program) implemented by the research consortium CETMA (involving important research institutes and industries as ENEA, AGIP, University of Lecce and Brindisi etc.); professor of the module "Micromechanics of Composites Materials."

Master on " Progettazione, Tecnologie e Design per la Nautica da Diporto"; professor of the "Introductory module" and the module "Material Composites for Nautics" (2008)

Master on "COMPOSITE MATERIALS and Applications" (program POR 2000-2006), financed by Sicilian Region and organized by IRES SpA; professor of the module "Mechanical Joints" (2007).

RICERCHE FINANZIATE

Project funded:

ECODENS – Eco-stabilization of the pomace by densification. Total amount € 880,000.00; it has been financed with European funds PSR 2007-2013 (DDG 839 of 07.13.2011). This program is devoted to the research and the development of an innovative and efficient industrial process for the production of biofuels from pomace and residues of agricultural pruning. It involves the participation of UNIPA, Confagricoltura and various SMEs (PMI) operating in the field of Renewable Energy.

R&D program called "Materiali e Ricerca per la Nautica – Sviluppo di nuove strutture sandwich composite per nautica da diporto". Total amount € 1,015,420.00; it has been funded by the Italian Ministry of University and Scientific Research (MIUR) - art. 11 of the Ministerial Decree 593 of 2007 (ex 297/97), DD No. 3005/Ric. of 12.23.2005. It deals with the development of innovative structures and components for naval application. The program involved the University of Palermo and primary Sicilian shipyards, as AICON Yachts SPA etc.

PRIN 2005: Research program entitled "Metodi di valutazione della durata e dell'affidabilità di componenti soggetti a processi aleatori di sollecitazione a banda larga". The program encompassed the research and development of new techniques for the analysis of fatigue life of mechanical components subjected to broadband random loading. The main results of the research were published in important ISI journals.

R&D program focused on "Hybrid Ceramix Composite Materials for Aeronautics Application", in collaboration with ALENIA Aermacchi SpA (under a proper Non Disclosure Agreement, 2013-2015) and University of Lecce.

R&D program focused on "Use of Natural Fibers for Manufacturing Innovative Bio-Composite", founded by Sicilian Region (2014-2015) by using European Funds (about 40 k€) devoted to the Development of Marginal Lands.

EX 60% from UNIPA (2001-2015).

INCARICHI / CONSULENZE

COLLABORATION WITH RESEARCH INSTITUTIONS AND INDUSTRIES:

1. Los Alamos National Laboratory (LANL) - New Mexico, USA – CONTACT: Dr. Mike Prime. The Research deals with new investigation techniques for the residual stress analysis by the Contour Method. The obtained results have been published on high-profile ISI journals (2005-2012).
1. Swerea SICOMP AB (Sweden) – leading European research institute in the field of polymer matrix composites – CONTACT: Dr. Leif Asp. This collaboration, including also the mobility of undergraduates and PhD student, concerning the study of Multi-functional Composite Materials - CFRP Thin Film Capacitors.

1. Alenia Aermacchi SpA - Finmeccanica Group (2011-2012), the most important Italian aerospace company (military aircraft and components of civil aircraft as Airbus A380, A330, A318, A319, A320, A321, A350, B787 Dreamliner Boeing, Embraer ERJ-170 and Dassault Falcon 900EX, 2000, 7X). CONTACT: Dr. Marco Basaglia and his team of engineers. The research deal with the development of innovative aeronautical components by using advanced ceramic matrix composites (activities subject to NDA).

1. Italtel SpA (2010-2012), Italian industry leader in the manufacturing of printed circuit boards (PCB) for the Automotive Industry (Wolkwagen, Renault, Fiat etc). The research deal with innovative methods for the analysis of residual stresses induced by machining, and responsible of the most in services failures. The activities carried out in this field have led to the certification of several PCBs that currently equip various modern cars (Golf, Fiat 500 etc..).

1. SINT Technology, manufacturer of the well known system for the Analysis of Residual Stresses called RESTAN (commercialized by the HBM). CONTACT: Dr Emilio Valentini. The research activities deal with the development of procedures for the evaluation of the measurement uncertainty as well as new procedures for stress analysis by using the hole drilling method and the groove method. The results obtained in this field have been published in important ISI journals.

1. COBRA SpA (2008-2009), Italian industry leader in the manufacturing of containers for international transport; the collaboration has been aimed to the development of an innovative container made entirely by means of polymer matrix composites (PMCs).

1. AICON YACHTS SPA (2005-2011), Italian shipyard leader in the manufacturing of yachts and mega-yachts; the collaboration has been devoted to the development of innovative components for yachts and mega-yacht.

ASSOCIAZIONI SCIENTIFICHE

MEMBER OF THE STEERING COMMITTE OF THE AIAS - ASSOCIAZIONE ITALIANA PER L'ANALISI DELLE SOLLECITAZIONI

PUBBLICAZIONE

INDEXED PUBLICATION LIST

Recent publications on ISI Journal (2013-2015):

- 1) Zuccarello B, D'Acquisto L, Di Franco G (2015). ANALYSIS OF THE ACCURACY OF FIBER-OPTIC STRAIN

TRANSDUCER INSTALLED BY USING COMPOSITE SMART PATCHES. J. Strain Anal, Vol.50(6), 373-385.

2) Marannano G, Zuccarello B (2015). Numerical experimental analysis of hybrid double lap aluminum-CFRP joints. COMPOSITES. PART B, ENGINEERING, vol. 71, ISSN: 1359-8368, doi: 10.1016/j.compositesb.2014.11.025

3) Di Franco G, Zuccarello B (2014). Analysis and Optimization of Hybrid Double Lap Aluminum-GFRP Joints. Composite Structures, vol.116, p.682-693.

4) Russo, A., Zuccarello, B (2013). Toward a design method for metal-composite co-cured joints based on the G-SIFs. Composites Part B: Engineering, 45(1), pp.631-643.

5) Zuccarello B, Di Franco G (2013). Numerical-experimental Method for the Analysis of Residual Stresses in Cold-expanded Holes. Experimental Mechanics, vol.53(4), p.673-686.

6) Ajovalasit A, Zuccarello B, Fragapane S (2013). The Reinforcement Effect of Strain Gauges Embedded in Low Modulus Material. STRAIN, vol. 49, p. 366-376, ISSN: 0039-2103, doi: 10.1111.

Other recent publications (2013-2015):

Other publications:

1) Russo, A., Zuccarello, B.

Toward a design method for metal-composite co-cured joints based on the G-SIFs(2012) Composites Part B: Engineering, 45, pp.631-643. (++)

DOI: 10.1016/j.compositesb.2012.08.024

<http://www.scopus.com/inward/record.url?eid=2-s2.0-84867235466&partnerID=40&md5=2d094f52623c450804be3eae1a7a39e5>

2) Zuccarello, B., Di Franco, G.

Numerical-experimental Method for the Analysis of Residual Stresses in Cold-expanded Holes (2012) Experimental Mechanics, pp. 1-14. (++)

DOI: 10.1007/s11340-012-9669-2

<http://www.scopus.com/inward/record.url?eid=2-s2.0-84866269654&partnerID=40&md5=3386df8627088d2f217d6e4c59b4e615>

3) Russo, A., Zuccarello, B.

Influence of the resin layer thickness at the interface of hybrid metal-composite co-cured joints(2011) Procedia Engineering, 10, pp. 3775-3786.

DOI: 10.1016/j.proeng.2011.04.617

<http://www.scopus.com/inward/record.url?eid=2-s2.0-80052956408&partnerID=40&md5=372f156c1876d58200de62c5406b5d1b>

Accession Number: WOS:000300451301134

4) Tumino, D., Zuccarello, B.

Fatigue delamination experiments on GFRP and CFRP specimens under single and mixed fracture modes

(2011) Procedia Engineering, 10, pp. 1791-1796.

DOI: 10.1016/j.proeng.2011.04.298

<http://www.scopus.com/inward/record.url?eid=2-s2.0-80052934863&partnerID=40&md5=e0fb862d4f5effb82fd269e5f3d2c47a>

Accession Number: WOS:000300451301134

8) Pagliaro, P., Prime, M.B., Robinson, J.S., Clausen, B., Swenson, H., Steinzig, M., Zuccarello, B. Measuring Inaccessible Residual Stresses Using Multiple Methods and Superposition(2011) Experimental Mechanics, 51 (7), pp. 1123-1134. (++)

DOI: 10.1007/s11340-010-9424-5

<http://www.scopus.com/inward/record.url?eid=2-s2.0-79961023020&partnerID=40&md5=e4981d8bc42bc1dce85cc29c772d8623>

Accession Number: WOS:000293552900010

Time Cited in Scopus: 3 (*)

Times Cited in Web of Science: 1

(xx)

10)Pagliaro, P., Prime, M.B., Swenson, H., Zuccarello, B.

Measuring multiple residual-stress components using the Contour method and multiple cuts(2010) Experimental Mechanics, 50 (2), pp. 187-194. (++)

DOI: 10.1007/s11340-009-9280-3

<http://www.scopus.com/inward/record.url?eid=2-s2.0-80051484051&partnerID=40&md5=ece0068cba99baf12a92844f236abe4c>

Accession Number: WOS:000274399500005

Times Cited in Scopus: 4

Times Cited in Web of Science: 5 (*)

(xx)

11)Scafidi, M., Valentini, E., Zuccarello, B.

Error and uncertainty analysis of the residual stresses computed by using the hole drilling method(2011) Strain, 47 (4), pp. 301-312. (++)

DOI: 10.1111/j.1475-1305.2009.00688.x

<http://www.scopus.com/inward/record.url?eid=2-s2.0-79960357011&partnerID=40&md5=2b3f3878c9df803a160bc1eccc7bc95c>

Accession Number: WOS:000292652800001

Time Cited in Scopus:1

Times Cited in Web of Science: 2 (*)

12)Pagliaro, P., Prime, M.B., Swenson, H., Zuccarello, B.

Measuring multiple residual-stress components using the contour method and multiple cuts (2010) Proceedings of the Society for Experimental Mechanics, Inc., 67, pp. 187-194.

DOI: 10.1007/s11340-009-9280-3

<http://www.scopus.com/inward/record.url?eid=2-s2.0-77955467964&partnerID=40&md5=3baed3370ec86f876e8f531afd7b1767>

Accession Number: WOS:000274399500005

Times Cited in Scopus: 6 (*)

Times Cited in Web of Science: 5

(xx)

13)Pagliaro, P., Prime, M.B., Clausen, B., Lovato, M.L., Zuccarello, B.

Known residual stress specimens using opposed indentation(2009) Journal of Engineering Materials and Technology, Transactions of the ASME, 131 (3), pp. 0310021-03100210. (++)

DOI: 10.1115/1.3120386

<http://www.scopus.com/inward/record.url?eid=2-s2.0-77955242132&partnerID=40&md5=635a3a83e418622e2074b63c751a842c>

Accession Number: WOS:000266667200002

Times Scopus Cited: 4 (*)

Times Cited in Web of Science: 3

17)Ajovalasit, A., D'Acquisto, L., Fragapane, S., Zuccarello, B.

Stiffness and reinforcement effect of electrical resistance strain gauges(2007) Strain, 43 (4), pp. 299-305. (++)

DOI: 10.1111/j.1475-1305.2007.00354.x

<http://www.scopus.com/inward/record.url?eid=2-s2.0-35349028383&partnerID=40&md5=af22f884221b5dd01fda0a5c4c78d5d5>

Accession Number: WOS:000250011600003

Times Cited in Scopus: 2 (*)

Times Cited in Web of Science: 2

25)Russo, A., Zuccarello, B.

Experimental and numerical evaluation of the mechanical behaviour of GFRP sandwich panels(2007) Composite Structures, 81 (4), pp. 575-586. (++)

DOI: 10.1016/j.compstruct.2006.10.007

<http://www.scopus.com/inward/record.url?eid=2-s2.0-34250744254&partnerID=40&md5=80917ee2edfcd7ba6c494aeef131564a>

Accession Number: WOS:000249256200012

Times Cited in Scopus: 18

Times Cited in Web of Science: 19 (*)

(xx)

26)Pagliaro, P., Prime, M.B., Zuccarello, B.

Inverting multiple residual stress components from multiple cuts with the contour method(2007) Proceedings of the SEM Annual Conference and Exposition on Experimental and Applied Mechanics 2007, 3, pp. 1993-2005.

ISBN: 1604232226;978-160423222-6

<http://www.scopus.com/inward/record.url?eid=2-s2.0-36148945700&partnerID=40&md5=d82409ee475cdf1946f5705351a4dcc1>

Times Cited in Scopus: 2

28)Russo, A., Zuccarello, B.

An accurate method to predict the stress concentration in composite laminates with a circular hole under tensile loading(2007) Mechanics of Composite Materials, 43 (4), pp. 359-376. (++)

DOI: 10.1007/s11029-007-0033-z

<http://www.scopus.com/inward/record.url?eid=2-s2.0-34548733169&partnerID=40&md5=692661d11dcbe49ae9b5170d69e75542>

Accession Number: WOS:000249628200006

Times Cited in Scopus: 4 (*)

Times Cited in Web of Science: 2

29)Fratini, L., Zuccarello, B.

An analysis of through-thickness residual stresses in aluminium FSW butt joints(2006) International Journal of Machine Tools and Manufacture, 46 (6), pp. 611-619. (++)

DOI: 10.1016/j.ijmachtools.2005.07.013

<http://www.scopus.com/inward/record.url?eid=2-s2.0-32444434212&partnerID=40&md5=42158ad9939e01d4f49d067e8c1a7966>

Accession Number: WOS:000237168000006

Times Cited in Scopus: 19 (*)

Times Cited in Web of Science: 17

(xx)

30)Ajovalasit, A., Pitarresi, G., Zuccarello, B.

Limitation of carrier fringe methods in digital photoelasticity(2007) Optics and Lasers in Engineering, 45 (5), pp. 631-636. (++)

DOI: 10.1016/j.optlaseng.2006.08.008

<http://www.scopus.com/inward/record.url?eid=2-s2.0-33847042727&partnerID=40&md5=23f28cb2724817243341d89acd113a01>

Accession Number: WOS:000245766700010

Times Cited in Scopus: 4 (*)

Times Cited in Web of Science: 4

35)Cirello, A., Zuccarello, B.

On the effects of a crack propagating toward the interface of a bimaterial system(2006) Engineering Fracture Mechanics, 73 (9), pp. 1264-1277. (++)

DOI: 10.1016/j.engfracmech.2005.12.003

<http://www.scopus.com/inward/record.url?eid=2-s2.0-33645085590&partnerID=40&md5=721c422037bea90763e1644db897dce5>

Accession Number: WOS:000236834500009

Times Cited in Scopus: 5 (*)

Times Cited in Web of Science: 4

36)Zuccarello, B., Adragna, N.F.

A novel frequency domain method for predicting fatigue crack growth under wide band random loading(2007) International Journal of Fatigue, 29 (6), pp. 1065-1079. (++)

DOI: 10.1016/j.ijfatigue.2006.10.002

<http://www.scopus.com/inward/record.url?eid=2-s2.0-33947290054&partnerID=40&md5=1146a51b2ae38363c634f25c31108f03>

Accession Number: WOS:000246346300011

Times Cited in Scopus: 1 (*)

Times Cited in Web of Science: 1

37)Pagliaro, P., Zuccarello, B.

Residual stress analysis of orthotropic materials by the through-hole drilling method(2007) Experimental Mechanics, 47 (2), pp. 217-236. (++)

DOI: 10.1007/s11340-006-9019-3

<http://www.scopus.com/inward/record.url?eid=2-s2.0-33847651024&partnerID=40&md5=1bc10de5eeeeea0adbb3006a32d7fa7d>

Accession Number: WOS:000244677900004

Times Cited in Scopus: 5 (*)

Times Cited in Web of Science: 4

43)Zuccarello, B., Ferrante, S.

Use of automated photoelasticity to determine stress intensity factors of bimaterial joints(2005) Journal of Strain Analysis for Engineering Design, 40 (8), pp. 785-800. (++)

DOI: 10.1243/030932405X31037

<http://www.scopus.com/inward/record.url?eid=2-s2.0-27644444371&partnerID=40&md5=225e78b50d123c303a24f31322c3e756>

Accession Number: WOS:000233577900004

Times Cited in Scopus: 3 (*)

Times Cited in Web of Science: 1

44)Zuccarello, B.

Complete isochromatic fringe-order analysis in digital photoelasticity by fourier transform and load stepping(2005) Strain, 41 (2), pp. 49-58. (++)

DOI: 10.1111/j.1475-1305.2005.00183.x

<http://www.scopus.com/inward/record.url?eid=2-s2.0-27644491951&partnerID=40&md5=f72d81494bf4d04ef30a605a9046ce76>

Accession Number: WOS:000229423200002

46)Ajovalasit, A., Zuccarello, B.

Local reinforcement effect of a strain gauge installation on low modulus materials(2005) Journal of Strain Analysis for Engineering Design, 40 (7), pp. 643-653. (++)

DOI: 10.1243/030932405X30894

<http://www.scopus.com/inward/record.url?eid=2-s2.0-27644532355&partnerID=40&md5=6d015f70987f99a15b7a5c11244ce56d>

Accession Number: WOS:000233252000004

Times Cited in Scopus: 8

Times Cited in Web of Science: 9 (*)

47)Ajovalasit, A., D'Acquisto, L., Fragapane, S., Zuccarello, B.

On the stiffness and the reinforcement effect of electrical resistance strain gauges(2005) Applied Mechanics and Materials, 3-4, pp. 349-354.

ISSN: 1660-9336; ISBN: 0-87849-987-3

<http://www.scopus.com/inward/record.url?eid=2-s2.0-33745179899&partnerID=40&md5=c185c4f2ad2e08756ee8c7d2da7a02da>

Accession Number: WOS:000238287200052

49) Petrucci, G., Zuccarello, B.

Fatigue life prediction under wide band random loading(2004) *Fatigue and Fracture of Engineering Materials and Structures*, 27(12), pp. 1183-1195.(++)

DOI: 10.1111/j.1460-2695.2004.00847.x

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ATTIVITA' SCIENTIFICHE

The scientific activity involves studies on:

- 1) *Bio-Composite obtained by using natural fibres (agave etc.)*
- 2) *Hybrid Ceramix Composite obtained by joining properly CFRP and low cost CMC based on Alumina and/or Zirconia.*
- 3) *Optimization of Hybrid Adhesively Bonded/Bolted Joints (Co-cured, etc.) for structural applications.*
- 4) *Analysys of the Reinforcing Effects of Strain Transducers as ES (embedded etc.) and Fiber Optic Transducer*
- 5) *Random Fatigue with particular attention to Wide Band Loading Processes and its representation by PSDs.*
- 6) *Damage processes of Composite Materials (microcracking and its effect on the mechanical strenght of PMCs)*
- 7) *Residual Stress Analysis by HDM and RCM*

REVIEWING ACTIVITIES FOR ISI JOURNALS:

Referee in blind review processes relatives to articles dealing with Experimental Mechanics (Photoelsticity, Residual Stress, Strain Gauges etc), Random Fatigue, Composite Materials, Mechanical and Adhesive Joints, submitted to various ISI journal as:

"J. of Strain Analysis" (E-MECH);

"International Journal of Fatigue" (Elsevier);

"Optics & Lasers Engineering" (Elsevier);

"STRAIN" (Blackwell);

"Fatigue and Fracture of Eng. Mat. & Struct." (Blackwell);

"Engineering Fracture Mechanics" (Elsevier);

"International Journal of Vehicles" (InderScience);

"International Journal of Mechanical Science (E-MECH);

“International Journal of Material Sciences” (Elsevier);

“Experimental Mechanics” (Springer);

“Ocean Engineering” (Elsevier);

Material Science & Technology (Elsevier);

“Composite Structures” (Elsevier);

“International J. of Composite Materials” (S&A Publishing);

“Composite Part B: Engineering” (Elsevier);

“Journal of Composite Materials” (Sage Publications);

“Journal of Mechanical Engineering Research” (Academic Journals);

AMBITI DI RICERCA

The scientific activity involves the following areas:

1) *Experimental Mechanics*

2) *Automated Photoelasticity*

3) *Strain Measurements by ES*

4) *Random Fatigue*

5) *Composite Materials*

6) *Adhesive and Mechanical Joints (Co-cured, Friction Stir Welding etc.)*

The relative results have reported in about 100 publications including:

35 INTERNATIONAL JOURNALS (indexed by Scopus and WoS)

25 INTERNATIONAL CONFERENCES (5 of which are indexed by Scopus and WoS)

46 NATIONAL CONFERENCE

2 MONOGRAPHS ETC.

ALTRE ATTIVITA

Other relevant activities:

President of the Commission for admission to the Master on " Progettazione, Tecnologie e Design per la Nautica da Diporto ", sponsored by the University of Palermo and funded by the Sicilian Region.

Member of various Committees for the selection of candidates for PhD-courses in Mechanical Design.

Member of the Faculty Board (Giunta di Facoltà) in the period 2005-2007.

Member of the Faculty Board (Giunta di Facoltà) in the period 2011-2013.

Member of the Scientific Committee of the Interdepartmental Research Centre for Composite Materials - CIRMAC.

Member of the Administrative Board of the "Prof. G. Manzella" Foundation (it assigns an annual Degree Prize for the best thesis in the field of Experimental Mechanics).

Permanent Secretary of the "Esami di Stato" Commission, in the period 2007-2008.

Member of the PhD Board (Collegio dei Docenti) for the PhD-courses on "Mechanical Design".

Aggregated member of the "Esami di Stato" Commission, in the period 2012/2013.

OTHER SCIENTIFIC ACTIVITIES

Tutor of several PhD-students attending PhD-courses on Machine Design (2000-2005) and Mechanical Design (2005-2012);

Tutor of various Post-doc Research Grants attendants, with research programs focused on Experimental Mechanics, Composite Materials, Random Fatigue, Mechanical and Adhesive Joints, SMA (Shape Memory Alloy).

Tutor of about 50 Graduate Thesis on Experimental Mechanics (Photoelasticity, Strain Analysis, Residual Stresses), Random Fatigue, Composite Materials and joints (welded, bi-material, co-cured etc).

He participated in the Marie Curie Research Training Network (2008-2010) "Multidisciplinary Research and Training on Composite Materials for Applications in Transport Modes" (European Commission FP6).

Research Associate involved in the European Project BRITE EURAM (1998-99) called ADPRIMAS (ADvanced concepts for primary Metallic Aircraft Structures), concerning the development of automatic methods of photoelasticity and the photoelastic characterization of innovative materials used in the manufacturing of three-dimensional models of aircraft components, by

means of stereolithography. The results are summarized in the scientific report "Photoelasticity: automated calibration of methods and materials."

PRIN 1998: Member of the Research unit of Palermo, under the research program entitled "Automation in photomechanical: photoelasticity and its application to fracture mechanics."

Scientific Director of about ten research programs funded by the University of Palermo (ex 60%), for a total amount of about 45 keuro.

Head of the Laboratory of Composite Materials of the Dipartimento di Ingegneria Chimica, Gestionale, Informatica e Gestionale (DICGIM), University of Palermo.

Head of the Laboratory of Strain Analysis of the Dipartimento di Ingegneria Chimica, Gestionale, Informatica e Gestionale (DICGIM), University of Palermo.

Other RECENT activities ON:

ALTERNATIVE ENERGIES

ENERGY EXPLOITATION OF AGRICULTURAL BIOMASS

MARGINAL LAND USE FOR BIOGAS AND NATURAL FIBRES