



**International Symposium on  
Dynamic Response and Failure  
of Composite Materials**

**Island of Ischia, Italy  
September 6-9, 2016  
Draf 2016**

## **Chair Person**

Valentina Lopresto

Antonio Langella

Department of Chemical, Materials and Production Engineering  
University of Naples "Federico II"

## **Organizing Committee**

Valentina Lopresto

Antonio Langella

Yapa D.S. Rajapakse

Claudio Cigliano

Department of Chemical, Materials and Production Engineering  
University of Naples "Federico II"

## **Scientific Committee**

Valentina Lopresto (Univ. of Naples)

Antonio Langella (Univ. of Naples)

Yapa D.S. Rajapakse (ONR)

Stefania Cantoni (CIRA)

Zafer Kazanci (Turkish Air Force Academy)

Roberta Massabò (Univ. of Genoa)

Giancarlo Caprino (Univ. of Naples)

Loredana Santo (Univ. of Rome)

Giovanni Belingardi (Politecnico of Turin)

Aniello Riccio (II Univ. of Naples)

Alberto D'Amore (II Univ. of Naples)

Claudio Bruzzo (MSC Software)

Giacomo Sabino (MBDA)

Pablo Navarro (Univ. of Toulouse)


Pietro Russo (CNR)

# International Symposium on Dynamic Response and Failure of Composite Materials

## Draf 2016

# PROGRAM

<b>Tuesday, September 6th, Afternoon</b>		
		<b>Registration</b>
		<b>Pre-Conference Event</b> Chair: <b>P. Maffettone</b> , Director of Dpt. of Chemical, Materials and Production Engineering CIRA, <b>S. Cantoni</b> , Deputy Manager of Space Division MBDA, <b>G. Sabino</b> , Director of Research & Technologies Group MSC, <b>A. Mete</b> , Account Manager Strategic Aerospace Industry <b>I. Crivelli Visconti</b> : "Composite Materials: Past, Present and Future"
		<b>Welcome Cocktail</b>

<b>Wednesday, September 7th, Morning</b>		
<b>Room "Primavera"</b>		
8.30	8.45	<b>Welcome by Symposium Chairperson</b>
8.45	9.30	<b>Opening Session - Plenary Lecture</b> <b>Challenges in the Dynamic Response of Composites for Marine Structures</b> <b>Dr. Yapa D. S. Rajapakse</b> Program Manager, ONR Solid Mechanics
		
9.30	10.15	<b>Plenary Lecture</b> <b>Dynamic Instabilities in Composite Underwater Structures</b> <b>Arun Shukla</b> , University of Rhode Island
10.15	10.35	<b>Coffee Break</b>
10.35	12.45	<b>ONR Special Session</b> Chairs <b>V. Lopresto</b> , <b>R. Massabò</b>
10.35	11.05	<b>Key Note: Meso-Structural Effects on Wave Propagation in Multilayered Structures</b> <b>R. Massabò</b> , University of Genoa
11.05	11.30	<b>High-Speed Impact Performance of Carbon/Epoxy Composites at Very Low Temperatures</b> <b>V. Sanchez Galvez</b> , F. Galvez, D. Cendon, L. Sanchez Paradela

1130	11.55	<b>Design of Sandwich Specimen for Fatigue Testing in Bending and Related Outcomes</b> <u>P. Casari</u> , F. Alila, J. Fajoui, M. Kchaou, R. Gerard	
11.55	12.20	<b>Impact Loading on Marine Panels: Modeling the Effect of Water Backing</b> A. Shams, V. Lopresto, <u>M. Porfiri</u>	
12.20	12.45	<b>Residual Strength Evaluation after Impact Tests in Extreme Conditions on CFRP laminates</b> <u>V. Lopresto</u> , A. Langella, I. Papa	
12.45	2.00	<b>Lunch</b>	
<b>Wednesday, September 7th, Afternoon</b>			
<b>Room “Primavera”</b>			
2.00	3.45	<b>ONR Special Session</b> Chair <b>M. Porfiri</b>	
2.00	2.30	<b>Key Note: Air Blast Performance of Composite Sandwich Structures</b> <b>J.P. Dear</b> , Imperial College London	
2.30	2.55	<b>Effect of Slamming Impact on Out-of-Autoclave Cured Prepregs of GFRP Composite Panels for Hulls</b> <u>J.C. Suarez</u> , P. Townsend, E. Sanz, I. Diez, P. Pinilla	
2.55	3.20	<b>Underwater Blast Performance of Composite Sandwich Structures</b> <u>E. Rolfe</u> , M. Kelly, H. Arora, J. P. Dear	
3.20	3.45	<b>Debond Fracture Characterization in Sandwich Composites at Low Temperature</b> <u>A. Farshidi</u> , M. Manca, C. Berggreen	
3.45	4.15	<b>Coffee Break</b>	
4.15	6.20	<b>Session 1: Room “Primavera”</b> <b>Automotive</b> Chair <b>F. Marulo</b>	<b>Session 2: Room “Nitrodi”</b> <b>Modelling Failure of Composites</b> Chair <b>A. Riccio</b>
4.15	4.40	<b>An Experimental and Numerical Study on the Impact Response of an Automotive Bumper Solution Made of Semi Impregnated Micro-Sandwich Composite</b> <u>G. Belingardi</u> , A.T. Beyene, B. Martorana,	<b>A Numerical Assessment of Fiber Bridging Influence on Composite Panels Skin-Stringer Debonding</b> A. Riccio, <u>A. Russo</u> , A. Sellitto, A. Raimondo
4.40	5.05	<b>Lightweight Design of Composite Structures Using Modified Particle Swarm Optimizer</b> <u>S. Boria</u>	<b>Numerical, Experimental and Analytical Correlation for Predicting the Structural Behaviour of Composite Structures Under Impact</b> <u>F. Di Caprio</u> , A. Langella, V. Lopresto, G. Caprino
5.05	5.30	<b>An Innovative Non-Destructive Test for Monitoring the Residual Properties of Impacted Components</b> D.S. Paolino, A. D’Andrea, <u>G. Belingardi</u> , <u>L. Cascone</u> , D. Fondacaro	<b>Multi-Scale Modelling Technology for a more Affordable Use of Composites</b> <u>R. Assaker</u>
5.30	5.55	<b>Modelling of Falling Weight Impact Behaviour of Hybrid Basalt/Flax Vynilester Composites</b> S. Boria, A. Pavlovic, C. Fragassa, <u>C. Santulli</u>	<b>Estimating Fatigue Life from Accelerated Data Via the Birnbaum-Saunders Model</b> <u>G. D’Anna</u> , M. Giorgio, A. Riccio
5.55	6.20	<b>Impact Ward: A New Bed Layer Artificially Made for Impact Absorption</b> <u>M. Angelillo</u> , C. Cennamo	<b>Numerical Simulation of the Lamb Wave Propagation in Impacted CFRP Laminate</b> <u>A. De Luca</u> , F. Caputo
7.30	<b>Nice Dinner - Departure from Hotel Continental</b>		

**Thursday, September 8th, Morning**

**Aerospace Session: Room “Primavera”**

**Failure characterization and Monitoring of Composite Structures for Aerospace Applications**

**Chair: F. Ricci**

8.30	9.15	<p><b>Plenary Lecture</b></p> <p><b>Perspectives on Future Aerospace Transportation Systems</b></p> <p><b>W. Villadei</b>, Cosmonaut, Italian Air Force</p>
9.15	9.45	<p><b>Key Note: Current Status and Future Perspectives of Shape Memory Polymer Composites for Aerospace Applications</b></p> <p><b>L. Santo</b>, University of Rome "Tor Vergata", Italy</p>
9.45	10.10	<p><b>Fuselage Crashworthiness Lower Lobe Dynamic Test</b></p> <p><u>M. Guida</u>, F. Marulo, F. Di Caprio, M. Ignarra, A. Lamboglia, B. Gambino</p>
10.10	10.35	<p><b>Predicting the Impact Response of 3d Fiber Reinforced Foam Core Composite Sandwich Structures</b></p> <p>M.J. Wu, J.I. Rome, V.K. Goyal, S. Tai, Z.T. Kier, <u>A. K. Mal</u></p>
10.35	10.55	<p><b>Coffee Break</b></p>
10.55	11.20	<p><b>Structural Health Monitoring In Composites Based On Probabilistic Reconstruction Techniques</b></p> <p><u>V. Memmolo</u>, F. Ricci, N.D. Boffa, L. Maio, E. Monaco</p>
11.20	11.45	<p><b>Design of Composite Stanchions for the Cargo Subfloor Structure of a Civil Aircraft</b></p> <p><u>F. Di Caprio</u>, M. Ignarra, F. Marulo, M. Guida, A. Lamboglia, B. Gambino</p>
11.45	12.10	<p><b>A User Interface Damage Detection Technique Based On A Multi-Parameter Methodology</b></p> <p>V. Memmolo, N.D. Boffa, L. Maio, <u>E. Monaco</u>, F. Ricci</p>
12.10	12.35	<p><b>Ultrasonic and IR Thermographic Detection of a Defect in a Multilayered Composite Plate</b></p> <p><u>L. Maio</u>, C. Meola, S. Boccardi, V. Memmolo, F. Ricci, N.D. Boffa, E. Monaco</p>
12.35	1.30	<p><b>Lunch</b></p>

**Thursday, September 8th Afternoon**

1.30	2.00	<p><b>Key Note: The Role of SHM in the Design and Maintenance of Modern and Aging Structures</b></p> <p><b>F. Ricci</b>, University of Naples "Federico II"</p>		
2.00	4.30	<table border="1"> <tr> <td align="center"> <p><b>Aerospace Session 3: Room “Primavera”</b></p> <p><b>Failure Characterization and Monitoring of Composite Structures for Aerospace Applicat.</b></p> <p><b>Chair: A.K. Mal</b></p> </td> <td align="center"> <p><b>Session 4: Room “Nitrodi”</b></p> <p><b>Structural Impact Research Group, Istanbul</b></p> <p><b>Chair: P. Russo</b></p> </td> </tr> </table>	<p><b>Aerospace Session 3: Room “Primavera”</b></p> <p><b>Failure Characterization and Monitoring of Composite Structures for Aerospace Applicat.</b></p> <p><b>Chair: A.K. Mal</b></p>	<p><b>Session 4: Room “Nitrodi”</b></p> <p><b>Structural Impact Research Group, Istanbul</b></p> <p><b>Chair: P. Russo</b></p>
<p><b>Aerospace Session 3: Room “Primavera”</b></p> <p><b>Failure Characterization and Monitoring of Composite Structures for Aerospace Applicat.</b></p> <p><b>Chair: A.K. Mal</b></p>	<p><b>Session 4: Room “Nitrodi”</b></p> <p><b>Structural Impact Research Group, Istanbul</b></p> <p><b>Chair: P. Russo</b></p>			
2.00	2.25	<table border="1"> <tr> <td> <p><b>Analytical Model to Describe Damage in CFRP Specimen when Subjected to Low Velocity Impacts</b></p> <p><u>A. Manes</u>, M. Salvetti, A. Gilioli, C. Sbarufatti, M. Giglio, K. Dragan, M. Dziendzikowski</p> </td> <td> <p><b>Nonlinear Transient Response of Basalt/Nickel FGM Composite Plates Under Blast Load</b></p> <p>S. Basturk, H. Uyanik, <u>Z. Kazanci</u></p> </td> </tr> </table>	<p><b>Analytical Model to Describe Damage in CFRP Specimen when Subjected to Low Velocity Impacts</b></p> <p><u>A. Manes</u>, M. Salvetti, A. Gilioli, C. Sbarufatti, M. Giglio, K. Dragan, M. Dziendzikowski</p>	<p><b>Nonlinear Transient Response of Basalt/Nickel FGM Composite Plates Under Blast Load</b></p> <p>S. Basturk, H. Uyanik, <u>Z. Kazanci</u></p>
<p><b>Analytical Model to Describe Damage in CFRP Specimen when Subjected to Low Velocity Impacts</b></p> <p><u>A. Manes</u>, M. Salvetti, A. Gilioli, C. Sbarufatti, M. Giglio, K. Dragan, M. Dziendzikowski</p>	<p><b>Nonlinear Transient Response of Basalt/Nickel FGM Composite Plates Under Blast Load</b></p> <p>S. Basturk, H. Uyanik, <u>Z. Kazanci</u></p>			
2.25	2.50	<table border="1"> <tr> <td> <p><b>Multifunctional Polypropylene Core for Aerospace Sandwich Composite Panels</b></p> <p>A. Riccio, A. Raimondo, A. Sellitto, <u>V. Acanfora</u>, M. Zarrelli</p> </td> <td> <p><b>The Effects of the Thickness and Curvature on the Impact Behaviour of Composite Plates</b></p> <p><u>F. Usta</u>, F. Mullaoglu, H.S. Turkmen, Z. Mecitoglu, D. Balkan, H. Kurtaran, E. Akay</p> </td> </tr> </table>	<p><b>Multifunctional Polypropylene Core for Aerospace Sandwich Composite Panels</b></p> <p>A. Riccio, A. Raimondo, A. Sellitto, <u>V. Acanfora</u>, M. Zarrelli</p>	<p><b>The Effects of the Thickness and Curvature on the Impact Behaviour of Composite Plates</b></p> <p><u>F. Usta</u>, F. Mullaoglu, H.S. Turkmen, Z. Mecitoglu, D. Balkan, H. Kurtaran, E. Akay</p>
<p><b>Multifunctional Polypropylene Core for Aerospace Sandwich Composite Panels</b></p> <p>A. Riccio, A. Raimondo, A. Sellitto, <u>V. Acanfora</u>, M. Zarrelli</p>	<p><b>The Effects of the Thickness and Curvature on the Impact Behaviour of Composite Plates</b></p> <p><u>F. Usta</u>, F. Mullaoglu, H.S. Turkmen, Z. Mecitoglu, D. Balkan, H. Kurtaran, E. Akay</p>			
2.50	3.15	<table border="1"> <tr> <td> <p><b>Infrared Termography on an Aluminium Foam Sandwich Strucutre Subjected to Low Velocity Impact Test</b></p> <p>C. Meola, S. Boccardi, <u>G. Petrone</u>, N.D. Boffa, G.M. Carlomagno</p> </td> <td> <p><b>The Deformation Behavior of the Polycarbonate Plates Subjected to Impact Loading</b></p> <p><u>F. Mullaoglu</u>, F. Usta, H.S. Turkmen, D. Balkan, E. Akay, Z. Kazanci</p> </td> </tr> </table>	<p><b>Infrared Termography on an Aluminium Foam Sandwich Strucutre Subjected to Low Velocity Impact Test</b></p> <p>C. Meola, S. Boccardi, <u>G. Petrone</u>, N.D. Boffa, G.M. Carlomagno</p>	<p><b>The Deformation Behavior of the Polycarbonate Plates Subjected to Impact Loading</b></p> <p><u>F. Mullaoglu</u>, F. Usta, H.S. Turkmen, D. Balkan, E. Akay, Z. Kazanci</p>
<p><b>Infrared Termography on an Aluminium Foam Sandwich Strucutre Subjected to Low Velocity Impact Test</b></p> <p>C. Meola, S. Boccardi, <u>G. Petrone</u>, N.D. Boffa, G.M. Carlomagno</p>	<p><b>The Deformation Behavior of the Polycarbonate Plates Subjected to Impact Loading</b></p> <p><u>F. Mullaoglu</u>, F. Usta, H.S. Turkmen, D. Balkan, E. Akay, Z. Kazanci</p>			

3.15	3.40	<b>Influence of Stichching on Skin Stringer Debonding in Stiffened Composite Panels</b> A. Riccio, A. Buompane, <u>A. Raimondo</u> , A. Sellitto	<b>Numerical Investigation of Axially Loaded Combined CFRP and Aluminium Crush Structures</b> <u>K. Gunaydin</u> , Z. Eren, H.S. Turkmen, Z. Kazanci
3.40	4.05	<b>Visualization of Thermal Effects in Polypropylene-Based Composites Under Cyclic Bending Tests</b> <u>S. Boccardi</u> , C. Meola, G.M. Carlomagno, G. Simeoli, P. Russo	<b>Repeated Air Blast Load Response of Sisal Fibers Reinforced Bio-Composites</b> <u>Z. Eren</u> , K. Gunaydin, Z. Kazanci, H.S. Turkmen
4.05	4.30	<b>Large Notch Damage Evolution in Omega Stiffened Composite Panels</b> A. Riccio, <u>A. Sellitto</u> , A. Russo, V. Antonucci, M.R. Ricciardi, M. Zarrelli, V. Lopresto	<b>Delaminated Layered Panels Under Blast Loads</b> <u>I. Chirica</u> , E.F. Beznea
5.00	<b>La Mortella Garden Guided Tour - Departure by bus from the Hotel</b>		

## Friday, September 9th, Morning

### Room "Primavera"

8.30	9.15	<b>Plenary Lecture</b> <b>Phenomenological Approach to the Modeling of Fatigue Life and Strength Degradation Kinetics of Fiber Reinforced Composites</b> A. D'Amore, II University of Naples	
9.15	10.55	<b>Session 5: Room "Primavera"</b> <b>Advances in Materials Science</b> Chair <b>G.Belingardi</b>	<b>Session 6: Room "Nitrodi"</b> <b>Numerical Analysis</b> Chair <b>L.Santo</b>
9.15	9.40	<b>Low-Velocity Impact and Flexural Properties of Thermoplastic Polyurethane/Woven Glass Fabric Composite Laminates</b> <u>P. Russo</u> , A. Langella, I. Papa, G. Simeoli, V. Lopresto	<b>Semi-Continuous Strategy for the Modeling of Damage Mechanisms in Unidirectional Composites Under Low Velocity Impacts</b> B. Mahmoud, F. Pascal, <u>P. Navarro</u> , S. Marguet, I. Tawk, J.F. Ferrero
10.05	10.30	<b>Dynamic and Quasi Static Testing of Interpenetrating Polymer Network (IPN) Foam Cores</b> <u>C.J. Lindholm</u> , J. Jones, D. Olsson	<b>Numerical/Experimental Study on the Impact and CAI on GFRP Composite for Wind/Marine Applications</b> <u>G. Perillo</u> , J.K. Jorgensen
10.30	10.55	<b>Solitary Wave Dynamics of Composite Tensegrity Metamaterials</b> <u>F. Fraternali</u> , A. Amendola, G. Carpentieri, R.E. Skelton, V.F. Nesterenko	<b>Numerical Investigation of the Failure Phenomena in Adhesively Bonded Joints by Means of a Multi-Linear Equivalent Plastic Stress/Strain Approach</b> A. Riccio, R. Ricchiuto, F. Di Caprio, <u>A. Sellitto</u> , A. Raimondo, F. Scaramuzzino
10.55	11.15	<b>Coffee Break</b>	
11.15	1.20	<b>Session 5: Room "Primavera"</b> <b>Advances in Materials Science</b> Chair <b>Z. Kazanci</b>	<b>Session 7: Room "Nitrodi"</b> <b>Damage and Residual Stress</b> Chair <b>A. Langella</b>
11.15	11.40	<b>Mechanical Properties of Glass Fibre Composites Based on Nitrile Rubber Toughened Modified Epoxy Resin</b> <u>M.R. Ricciardi</u> , I. Papa, A. Langella, V. Lopresto, V. Antonucci	<b>Compression After Impact Analysis of Composite Stiffened Panels end Equivalent Hole Method</b> <u>F. Romano</u> , F. Di Caprio, U. Mercurio

11.40	12.05	<b>Impact Performance of GFRP Laminates with Modified Epoxy Resin</b> <u>I. Papa</u> , V. Antonucci, MR. Ricciardi, V. Lopresto, A. Langella	<b>Finite Element Evaluation of the Residual Stresses of Thermoset Based Composites</b> <u>L. Grassia</u> , A. D'Amore
12.05	12.30	<b>Dynamic-Mechanical Behaviour of Bio-Composites</b> <u>M. Durante</u> , A. Langella, A. Formisano, L. Boccarusso, L. Carrino	<b>Analysis of Thermal Damage in FRP Drilling</b> L. Sorrentino, S Turchetta, <u>L. Colella</u> , C. Bellini
12.30	12.55	<b>Impact Behaviour of Green Sandwich Structures</b> <u>F. Sarasini</u> , J. Tirillò, L. Lampani, E. Barbero, S. Sanchez-Saez, T. Valente, P. Gaudenzi, C. Scarponi	<b>Thermostructural and Electrical Properties of PICOM Oxide CMC</b> R. Signore, P. Di Petta
12.55	1.20	<b>Experimental Characterization of Metal Matrix Composite with Aluminium Matrix and Molybdenum Powders as Reinforcement</b> <u>A. Astarita</u> , A. Arora	
1.20	1.30	<b>Closure of the Symposium</b>	
6.00 pm.		<b>WINE TOUR: departure from Hotel Continental</b>	

## IMPORTANT NOTES:

All registered participants at Draf2016 must wear their name badge when attending luncheons, coffee breaks, Conference Dinner or any official Draf2016 function.

All the speakers are asked to upload their presentations on the computer in the room, at least 15 minutes before the start of their session.

20 minutes are dedicated to the presentation. The last five minutes will be dedicated to questions and discussion. We warmly ask to be on time.

## CONFERENCE SECRETARIAT

**Claudio Cigliano**

University of Naples Federico II

Department of Chemical, Materials and Production Engineering

P.le V. Tecchio,80

80125 Naples

Phone: +39 081 7682216

Fax: +39 081 7682362

e-mail: [clciglia@unina.it](mailto:clciglia@unina.it)

