

**DAY 1 | 3<sup>rd</sup> September 2018**

8h00 – 9h00

Registration

9h00

Opening Session

9h30

**Keynote Lecture**

*European Defence Trends in Materials and Structures Technologies*

Giuseppe Daquino

European Defense Agency | **Belgium**

Chair: Raul Fangueiro

Cisterna Room		Lisboa Room		Atlântico Room		
10h15	<b>Session 8 - Impact, Ballistic and Blast Performance</b> Chair: Jos Brouwers	<b>Lead-Free Primary Explosives based on Transition Metal Coordination Compounds</b> Jörg Stierstorfer University of Munich (LMU)   <b>Germany</b>	<b>Session 9 - Advanced Materials and Technologies for Defense</b> Chair: Sohel Rana	<b>Raw and Processed Materials Used in the European Defence Industry</b> Claudiu Pavel Joint Research Centre, European Commission   <b>Netherlands</b>	<b>Session 2 - Smart Materials and Structures</b> Chair: Maria Conceição Paiva	<b>Reduced Graphene Oxide Coating for Electromagnetic Interference Shielding Application</b> Ricardo Andrade MackGraphe   <b>Brazil</b>
10h30		<b>Ballistic Impacts Experiments and Modeling of Plastilina/Protection Systems</b> Lionel Gilson Royal Military Academy   <b>Belgium</b>		<b>A Dynamic Mechanical Analysis of T2 Copper at High Strain Rates</b> Shuai Chen ZNDY of Ministerial Key Laboratory, University of Science and Technology   <b>China</b>		<b>Smart Acclimatisation Textile Systems for Defense</b> Gilda Santos CITEVE - Technological Centre for the Textile and Clothing Industry of Portugal   <b>Portugal</b>
10h45		<b>Alternatives for Protection of Structures and Components Under Near Field Blast Loadings</b> Daniel Ambrosini University of Cuyo, CONICET   <b>Argentina</b>		<b>Adaptative Camouflage Technologies of Defense Interest</b> Bruno Marinho Management and Technological Innovation Agency   <b>Brazil</b>		<b>Smart and Sustainable Materials for Military Applications based on Natural Fibres and Silver Nanoparticles</b> Diana P. Ferreira Centre for Textile Science and Technology (2C2T), Minho University   <b>Portugal</b>
11h00 – 11h30	<b>COFFEE BREAK</b>					

11h30	<p><b>Invited Lecture</b> <b>Molecularly Imprinted Polymers and Optical Fiber Sensors for Security Applications</b> Nunzio Cennamo University of Campania Luigi Vanvitelli   <b>Italy</b></p>
11h45	
12h00	<p><b>Experimental and Numerical Characterization of 3D-Printed PLA under Uniaxial High Strain-Rate Loading</b> Hugo B. Rebelo CINAMIL, Military Academy and CERIS, ICIST and Department of Civil Engineering, Faculty of Science and Technology, Nova University of Lisbon   <b>Portugal</b></p>
12h15	<p><b>Propellant based on Sustainable Polymers from Succinic Acid</b> Nicolis Araujo Federal University of Rio de Janeiro   <b>Brazil</b></p>
12h30	<p><b>The Effect of PACVD Modification on the Usable Properties of the Ballistic Textiles Applied for the Design of the Body Protectors</b> Marcin Struszczyk Institute of Security Technologies MORATEX   <b>Poland</b></p>
12:45	<p><b>Textile Electrodes for Heart Rate Measurement: a Comparative Study for Firefighters' Monitoring</b> André G. Ferreira University of Minho   <b>Portugal</b></p>

**Session 4 - Advanced Polymers, Fibrous and Textile Materials**  
**Chair: François Bousso**

<p><b>Invited Lecture</b> <b>Closing the gap between Advances in Nanotechnology and Advanced Materials and its deployment</b> Lars Montelius INL   <b>Portugal</b></p>
<p><b>Lanthanum Hydroxide Nanoparticles / Multi-Wall Carbon Nanotubes Nanocomposite</b> Arvind Kumar Bhakta University of Namur   <b>Belgium</b></p>
<p><b>Graphene-Based Nanocomposites with Improved Mechanical and Ballistic Protection Properties</b> Israel Gago Technical University of Cartagena, Chemical and Environmental Engineering Department   <b>Spain</b></p>
<p><b>Application Argonium Plasma Jet with Frequency 10 KHZ in Atmospheric Environment</b> Luis Madson Costa Technical Institute of Aeronautics   <b>Brazil</b></p>
<p><b>Ballistic Resistance of Magnesium Alloy, AZ31B Reinforced with Carbon Nanotube and Lead under Gas Gun Simulation</b> Mohamad Faizal Abdullah National Defense University of Malaysia   <b>Malaysia</b></p>

**Session 6 - Nanomaterials and Nanostructures for Defense**  
**Chair: Petra Pötschke**

<p><b>Comparison of the Ballistic Stability of Composites based on Carbide of Boron, Corund, and Glass-Ceramics (Armored Sital)</b> Yuri Merkulov Independent scientist   <b>Russian Federation</b></p>
<p><b>Integrity of Carbon Fibre-Reinforced Polymer Composites during Impact whilst under Fire Conditions</b> Robert Chapple Institute for Materials Research and Innovation, University of Bolton   <b>United Kingdom</b></p>
<p><b>Abrasive Waterjet Machining of Aluminium / Boron Carbide Composite</b> Kanthababu Mani Department of Manufacturing Engineering, College of Engineering Guindy, Anna University   <b>India</b></p>
<p><b>Damage Investigation Over Upper Skin Composite Panels of the Eurofighter Aircraft</b> Michele Buonsanti Department Diceam Mediterranean University of Reggio Calabria   <b>Italy</b></p>
<p><b>Rheinfoced cork composites developed for helmet liner with improved damping performance</b> Francisco J. Galindo-Rosales Transport Phenomena Research Center, Faculty of Engineering, University of Porto   <b>Portugal</b></p>
<p><b>A Hierarchical Impact Force Reconstruction Method for Aerospace Composites</b> Mario Emanuele de Simone University of Bath   <b>United Kingdom</b></p>

**Session 1 - Advanced Composites for Defense Applications**  
**Chair: Wang Shijie**

13h00 – 14h00		LUNCH					
14h00	<b>Session 3 - CBRN Protection</b> <b>Chair: Rui Costa</b>	<b>Development of a Low-Cost Device for Detection of Explosives Vapors</b> Liliana Martelo Higher Technical Institute – University of Lisbon   <b>Portugal</b>	<b>Session 7 - Auxetic Materials</b> <b>Chair: Jun Lou</b>	<b>Invited Lecture</b> <b>Auxetic Materials: Potential for Defense Applications</b> Sohel Rana Fibrenamics, University of Minho   <b>Portugal</b>	<b>Session 4 - Advanced Polymers, Fibrous and Textile Materials</b> <b>Chair: Diana Ferreira</b>	<b>Increased Energy Absorption and Reliability of Beams by Improved Web-Flange Joints</b> Nandan Khokar Biteam AB   <b>Sweden</b>	
14h15							
14h30		<b>Rapid Deactivation of Organophosphorus Nerve Agents by Reactive Adsorbents Based on Nanocrystalline Metal (Hydr)Oxides</b> Jiri Henych Institute of Inorganic Chemistry of the Czech Academy of Sciences   <b>Czech Republic</b>		<b>Indentation and Impact in Dome-Shaped Auxetic Honeycombs</b> Yousef Dobah University of Bristol   <b>United Kingdom</b>		<b>Smart Textile Solutions</b> Lisandra Vilaça Smart Innovation   <b>Portugal</b>	
14h45		<b>Chemical and Biological Warfare Protection and Self-Decontaminating Fabrics based on Oxide Nanoparticles</b> João F. Pereira Fibrenamics, University of Minho   <b>Portugal</b>		<b>Development and Characterization of High Performance Auxetic Fabrics Produced Using Purl Knitted Structures</b> Rui Magalhães Centre for Textile Science and Technology (2C2T), University of Minho   <b>Portugal</b>		<b>Meta-Aramid Fiber with Smart and Functional Behaviour</b> Fernando Ribeiro Oliveira University Federal of Santa Catarina   <b>Brazil</b>	
15h00		<b>Selection of Chemical Protective Suits by Users: Are the Standard Tests Results Sufficient?</b> Denis Josse Alpes-Maritimes Fire and Rescue Services   <b>France</b>		<b>Development of High Performance Auxetic Composites for Application in Protection Area</b> Fernanda Steffens Federal University of Santa Catarina   <b>Brazil</b>		<b>Soldier Monitoring Systems: The Potential of Natural Fibres and Metal Oxide Nanoparticles</b> Sofia Costa Fibrenamics, University of Minho   <b>Portugal</b>	
15h15		<b>Response of Auxetic Composite Sandwich Panel to Fragment Simulating Projectile Impact</b> Matej Vesenjok Faculty of Mechanical Engineering, University of Maribor   <b>Slovenia</b>	<b>The Studied on Dynamic Plastic Deformation Behavior of 5052 Aluminium Alloy</b> Ping Song Nanjing University of Science and Technology   <b>China</b>				

15h30		<b>Non-Releasing Biocidal Coatings: A New Eco-Friendly Strategy to Prevent Marine Biofouling</b> Amaya Igartua IK4-TEKNIKER   <b>Spain</b>		<b>Characterization of Auxetic and Mechanical Behaviours of Auxetic Composites Developed Using Star Knitted Structures</b> João Pedro Nunes Institute for Polymers and Composites (IPC), University of Minho   <b>Portugal</b>		<b>The Studied on Dynamic Plastic Deformation Behavior of 5052 Aluminium Alloy</b> Ping Song Nanjing University of Science and Technology   <b>China</b>
15h45 – 16h15	<b>COFFEE BREAK</b>					
16h15	<b>Session 9 - Advanced Materials and Technologies for Defense</b> <b>Chair: Shripad P. Mahulikar</b>	<b>Invited Lecture</b> <b>Ballistic Performance of Nonwoven Fabrics for Lightweight Armours</b> Carlos Gonzalez IMDEA Materials Institute & Technical University of Madrid   <b>Spain</b>	<b>Session 8 - Impact, Ballistic and Blast Performance</b> <b>Chair: M. Balakrishnan</b>	<b>Development of A New Technology to Manufacture an Additional Ballistic Protection Panel (Add On) for the New Brazilian Armored Personnel Carrier (GUARANI)</b> Julio Dolce da Silva Brazilian Army   <b>Brazil</b>	<b>Session 5 - Design and Analysis of Protection Materials and Composites</b> <b>Chair: Michele Meo</b>	<b>Invited Lecture</b> <b>Molecular Modeling of Mechanical Properties of Semicrystalline Polyethylene</b> Jan Andzelm U.S. Army Research Laboratory   <b>United States</b>
16h30				<b>Manufacture and Ballistic Testing of Sheared Dyneema® Plates</b> Behjat Ansari University of Bristol   <b>United Kingdom</b>		
16h45		<b>Facilities, Skills and Competence in Advanced Materials Studies for Defense at C2T</b> António Pereira Gonçalves Center for Nuclear Sciences and Technologies (C2TN), Higher Technical Institute, University of Lisbon   <b>Portugal</b>		<b>Experimental Evaluation of Impact Resistant Composite Solutions for Commercial Aircraft Fuselage</b> Luis Pina INEGI   <b>Portugal</b>		<b>Experimental and Numerical Analysis of Combat Helmet Ballistic Performance</b> José Antonio Loya University Carlos III of Madrid   <b>Spain</b>
17h00		<b>A New Approach to Dual Use Research – Janus Project</b> Panagiotis Kavouras National Technical University of Athens, School of Chemical Engineering   <b>Greece</b>		<b>Mapping Ballistic Penetration Resistance of Hard Ceramic Targets</b> Joaquim M. Vieira Department of Materials and Ceramic Engineering (DEMaC) and CICECO, University of Aveiro   <b>Portugal</b>		<b>Characterization and Constitutive Modelling of Crushable Foams - Application to Highly Demanding Thermomechanical Loading Cases</b> Paulo Antunes Critical Materials   <b>Portugal</b>

17h15		<b>Activities at Onera on Materials and Structures for Defence Applications</b> Stefan Drawin ONERA   <b>France</b>	<b>Vibration Analysis Of Carbon Fiber Composite High-Pressure Vessel Subjected To Mechanical Impact</b> Maciej Panek Wrocław University of Science and Technology   <b>Poland</b>	<b>Comparison between Finite Element Models and Simplified Energetic Models for High Velocity Impacts on an Aluminium Plate</b> Énio Chambel Military Academy   <b>Portugal</b>
17h30		<b>Joining Methods of High Entropy Alloys Used for Ballistic Targets</b> Ionelia Voiculescu University Politehnica of Bucharest   <b>Romania</b>	<b>Modified Pendulum Impact Test on UHPFRC with Coarse Basalt Aggregate</b> H.J.H. Brouwers Eindhoven University of Technology   <b>Netherlands</b>	<b>Comparison of Numerical Modelling Methods of Innovative Materials for Ballistic Shields</b> Adrianna Mackiewicz Department of Mechanics, Materials Science and Engineering, Wrocław University of Science and Technology   <b>Poland</b>
<b>18h00</b> <span style="float: right;"><b>CLOSING</b></span>				
<b>19h00</b> <span style="float: right;"><b>SOCIAL PROGRAM - WELCOME RECEPTION</b></span> Palace of the Marquis of Pombal - visit the palace wine cellar and taste four of the best Portuguese wines grown in this region				

**DAY 2 | 4th September 2018**

**9h00 Conference Announcements**

9h15

**Keynote Lecture**

*Multifunctional Coatings based on Two-Dimensional Materials for Defense Applications*

Jun Lou

Rice University, USA

**Cisterna Room Lisboa Room Atlântico Room**

Time	Cisterna Room	Lisboa Room	Atlântico Room
10h00	<p><b>Energy of Micro Crystalline Cellulose- Carbon Nanotubes Reinforced Hybrid Cementitious Composites</b>            Shama Parveen            Fibrenamics, University of Minho   Portugal</p>	<p><b>Microstructural Analysis on Ballistic Tested Armour Steel Joints Fabricated Using Low Hydrogen Ferritic Consumables for Capping Pass</b>            Balakrishnan Marimuthu            The Institute for Sustainability and Innovations in Structural Engineering (ISISE), Department of Mechanical Engineering,            University of Coimbra   Portugal</p>	
10h15	<p><b>Environmental Stimuli-Responsive Electrospun Composite Nanofibres for Textile Based Advanced Defense Applications</b>            Shah M Reduwan Billah            Department of Chemistry, Durham University   United Kingdom</p>	<p><b>Behind-Helmet Blunt Trauma: Matching Measurement to Injury Using Finite Element Modelling</b>            Ana Ferreira Azevedo            Royal Military Academy   Belgium</p>	
10h30		<p><b>A Reduced-Order Modeling Based Design and Optimization for a Lightweight Multilayer Armor Plate against Blast and Impact</b>            Weiran Jiang            University of Michigan, Ann Arbor   USA</p>	
10h45	<p><b>Ballistic Composites Reinforced with Inorganic Nanotubes of Tungsten Disulfide</b>            Danica Simić            Military Technical Institute   Serbia</p>	<p><b>Simulation of Ballistic Impacts on Concrete with New Damage</b>            Luís Pereira            Portuguese Air Force Academy   Portugal</p>	

Session 6 - Nanomaterials and Nanostructures for Defense

Chair: Robert Young

Session 5 - Design and Analysis of Protection Materials and Composites

Chair: Paulo Antunes

11h00 – 11h30		COFFEE BREAK	
11h30	11h30	<p><b>Electrically Conductive Peek Filaments for Additive Manufacturing by FDM</b>          José Covas          University of Minho   <b>Portugal</b></p>	<p><b>Invited Lecture</b>  <b>Shape Memory Ceramics: Recent Progress and Perspectives for Future Protective Applications</b>          Chee Lip Gan          Nanyang Technological University   <b>Singapore</b></p>
11h45	11h45	<p><b>Graphene Nanocomposites for Defense Applications</b>          Robert J Young          National Graphene Institute and School of Materials, University of Manchester   <b>United Kingdom</b></p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Session 9 - Advanced Materials and Technologies for Defense</b></p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Chair: Chee Lip Gan</p>
12h00	12h00	<p><b>Hybrid Ballistic Solutions</b>          Ricardo Pinto          INEGI   <b>Portugal</b></p>	
12h15	12h15	<p><b>Waterborne Polyurethane Composites with Few Layer Graphene for High Performance Coatings</b>          Maria da Conceição Paiva          University of Minho   <b>Portugal</b></p>	
12h30	12h30	<p><b>Electrically Conductive Polymer Based Composites for Thermoelectric Applications</b>          Petra Pötschke          Leibniz Institute of Polymer Research Dresden   <b>Germany</b></p>	
12h45	12h45	<p><b>Plasma Electrolytic Oxidation Coatings for Engine Components of Light Armored Vehicles</b>          Amaya Igartua          ik4-tekniker   <b>Spain</b></p>	
12h45	12h45	<p><b>Quality Metrics Parameters of Personal Protection Equipment</b>          Inese Zimmele          Gerster TechTex   <b>Germany</b></p>	
13h00 – 14h00		LUNCH	

14h00	<b>Session 4 - Advanced Polymers, Fibrous and Textile Materials</b> Chair: José Borges	<b>Investigating the Mechanical Behaviours of 3D Warp Interlock Fabrics for Soft Body Armour Design</b> François Boussu ENSAIT   France	<b>Session 1 - Advanced Composites for Defense Applications</b> Chair: Sohel Rana	<b>Invited Lecture</b> <b>Carbon Nanotube/ Fiber Reinforced Ceramic Composites</b> Shijie Wang Institute of Materials Research and Engineering (IMRE), A*STAR (Agency for Science, Technology, and Research)   Singapore	<b>Special Session on AuxDefense Chair Giuseppe Daquino</b>	<b>Study of the Energy Absorption Capability of Para-Aramid Fabrics</b> Carina Cunha Fibrenamics, University of Minho   Portugal	
14h15							<b>Influence of Carbon Nanotubes in the Performance of a Ballistic Helmets</b> Fernando Cunha Fibrenamics, University of Minho   Portugal
14h30		<b>Functionalised Fabrics for Organic Compounds Degradation</b> Ana Maria Ferraria CQFM (IN and IBB) Higher Technical Institute   Portugal		<b>Multi-Impact Response of Composite Sandwiches Incorporating Cork Cores</b> Paulo Reis University of Beira Interior   Portugal		<b>Study of the Influence of the Polymer Matrix on the Energy Absorption in Reinforced Composites with Three-Dimensional Auxetic Meshes</b> João Bessa Fibrenamics, University of Minho   Portugal	
14h45				<b>Influence of the Consolidation Pressure on the Shock Wave Propagation in UHMWPE Composites</b> Torsten R Lässig Fraunhofer Ernst-Mach-Institut, Freiburg   Germany		<b>Influence of Different Loading Rates on Energy Absorption Capability of Para-Aramid Fabrics</b> Sónia Costa Fibrenamics, University of Minho   Portugal	
15h00		<b>Flexible Textile Supercapacitors based on Nitrogen-Doped Carbon Nanomaterials</b> Rui Costa Faculty of Sciences, University of Porto   Portugal		<b>Novel Multi-Scale Cimentitious Composites Developed Using Microcrystalline Cellulose (MCC) and Sisal Fibers</b> Shama Parveen Fibrenamics, University of Minho   Portugal		<b>Advanced fibrous structures for external layer of ballistic vests</b> Ana Leitão Fibrenamics, University of Minho   Portugal	
15h15		<b>Functionalization of a Non-Newtonian Fluid Composed of Silica Nanoparticles into Cotton Substrates for Anti-Stab Protection</b> Filipa Fernandes Ooze Nanotech   Portugal		<b>Deep Penetration of Ultra-High Molecular Weight Polyethylene Composites by a Sharp-Tipped Punch</b> Burigede Liu Department of Engineering, University of Cambridge   United Kingdom		<b>Study on the Usability of Innovative Knee and Elbow Pads based on Auxetic Composites</b> Marta Brito Fibrenamics, University of Minho   Portugal	
15h30		<b>Degradation of DMMP: Functionalised Fabrics as an Efficient Photocatalyst</b> Pedro Neto Unidade Militar Laboratorial de Defesa Biológica e Química   Portugal		<b>Effects of Inclination Angle on Pullout Performance of Hooked End Fiber Embedded in UHPC</b> Y.Y.Y. Cao Eindhoven University of Technology   Netherlands		<b>Biomimicry Principles And UX In Product Design For Defense</b> Filipe Moreira Fibrenamics, University of Minho   Portugal	



15h45  
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16h15

COFFEE BREAK

16h15

**Invited Lecture**

**IR-Signatures of Low Flying Aircraft and Their Engine-Embedded Fuselage's Emissivity**

Shripad Mahulikar

Indian Institute of Technology Bombay | **India**

16h30

16h45

**SHM TB30 – Methodology and Tools for Assessing the Structural Health and Life Extension of Legacy Aircraft**

Paulo Antunes

Critical Materials | **Portugal**

17h00

**Plasma Electrolytic Oxidation Coatings for Engine Components of Light Armored Vehicles**

Igartua Amaya

Fundacion TEKNIKER | **Spain**

17h15

**An Overview of Mechanical Behaviour of Cellular Metals as Fillers in Thin-Walled Structures**

Isabel Duarte

University of Aveiro | **Portugal**

17h30

**Influence of Silane Coupling Agent on Shear Thickening Fluids (STF)**

Thiago Santos

Federal University of Rio Grande do Norte – PPGET | **Brazil**

**Thermal Isolation/Barriers for Small Caliber Weapon Applications**

Adam Foltz

US Army Ardec Picatinny Arsenal | **United States**

**Mechanical Properties of Ultra High Performance Fiber Concrete and its Response to Impact Loading**

Anna Mina

Department of Civil and Environmental Engineering, University of Cyprus and School of Civil Engineering, National Technical University of Athens | **Cyprus**

**Different Composite Behaviours Under Blast Loading**

Arthur Voisin

Renault Trucks Defense / GEMTEX | **France**

**Performance of Structural Blast Mitigation Measure for Oil and Gas Industrial Facilities**

Damjan Cekerevac

Institute for Sustainability and Innovation in Structural Engineering | **Portugal**

**UHPFRC Resistance to Projectile Impact in Dependence on Fibre Content**

Jindřich Fornůšek

CTU in Prague | **Czech Republic**

**Spallation Observed in Hard Metals During Taylor- Impact Tests**

Torsten Lässig

Fraunhofer Institut für Kurzezeitdynamik, Ernst-Mach-Institut (EMI) | **Germany**

18h00

CLOSING SESSION

20h00

SOCIAL PROGRAM - CONFERENCE DINNER

Vila Galé Collection Palácio dos Arcos

**DAY 1 & 2 | 3<sup>rd</sup> - 4<sup>th</sup> September 2018**

9h00 –  
18h00

Poster Session

**Modification the Polyamide 6 Film with Silver Selenide**

Remigijus Ivanauskas  
Kaunas University of Technology | **Lithuania**

**Peculiarities of The Silver Selenide Layers Formation on the Different Nature Fibers Surface**

Daiva Milasiene  
Kaunas University of Technology | **Lithuania**

**Passive and Active Chemical Protection**

Ana Leitão  
Center for Textile Science and Technology, University of Minho | **Portugal**

**Dyeing of Meta-Aramid Fibres Previously Functionalized with PDDACI**

Fernando Ribeiro Oliveira  
Federal University of Santa Catarina | **Brazil**

**Military Textiles – Protection Mechanisms**

Fernanda Steffens  
Federal University of Santa Catarina | **Brazil**

**The Thermal Colour and the Emissivity of Printed Pigments on Knitted Fabrics for Application in Diurnal Thermal Camouflage Garments**

Catarina Pimenta  
Centre for Textile Science and Technology (2C2T), University of Minho | **Portugal**

**Trends in Camouflage**

Danielle Beduschi  
University of Minho | **Portugal**

**Creating Fibrous Composites Enhanced With Electric Field**

Wiesława Urbaniak-Domagala  
Lodz University of Technology | **Poland**

**Predicting the mechanical properties of Cellulosic and Polyester Yarns using CLARA: Cloud Learning Autonomous Reacting Algorithms**

Sérgio Branco  
University of Minho | **Portugal**