



European Materials Research Society

2025 Spring Meeting

May 26 – 30 | Strasbourg Convention Centre

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SYMPOSIUM 0

Laser-matter interaction for life and society: fundamental mechanisms and emerging applications

Oral sessions : LONDRES 2 – GROUND FLOOR

Poster sessions : ETOILE – FIRST FLOOR

Symposium Organizers:

Anna Paola CARICATO (Main organizer), University of Salento, Department of Mathematics and Physics “E. De Giorgi”, Italy

Camilo FLORIAN BARON, Kassel Universität, Germany

Mihaela FILIPESCU, National Institute for Lasers, Plasma and Radiation Physics, Romania

Nadjib SEMMAR, CNRS / University of Orléans, France

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Monday May 26

002 Biomimetic and Surface functionalization - 1

Chairperson(s): FLORIAN Camilo

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10:30	471	Lasers as a versatile tool for biomimetic surface engineering GRÄF Stephan (Invited)
11:00	161	Physico-Chemical characterization of LIPSS formation by femtosecond laser beam on c-Si under Controlled Atmospheres LOUNIS Lynda
11:30	1720	Influence of fs-laser irradiation on the superconducting properties of Nb thin films FRECHILLA Javier
11:45	2007	Topographical and Stress Modification of Ti6Al4V Surface by Micro-Nano Surface Processing Using Pulsed Laser DUTTA MAJUMDAR Jyotsna

Monday May 26

003 Biomimetic and Surface functionalization - 2

Chairperson(s): SEMMAR Nadjib

[View session abstracts](#)

13:45	159	Time-resolved infrared thermodiagnosics for ultrashort pulsed laser micro-processing MARTAN Jiri (Invited)
14:15	2059	Wettability characterization of laser textured thin film metallic glasses: from macro- to micro- scale using Environmental SEM BRUHIER Hugo
14:30	3149	Tailoring optical, photothermal and electronic properties of semiconductors and dielectrics by Laser-Induced Surface Nanotexturing ORLANDO Stefano
14:45	2269	Narrow Band Bolometric Response from Ultra-Thin Gold Microwires SINGH Amrita
15:00	2327	Reversible Modification of Laser-Induced Surface Modifications on NiTi through the Shape Memory Effect MARX Jan
15:15	2382	Partnership between DLIP and LIPSS for 2D nanostructuring of semiconductors SOLANA Irene
15:30	3117	Selective laser induced surface structures in phase separated polymer blends REBOLLAR Esther

Monday May 26

004 Advanced beam shaping and non linear laser processing

Chairperson(s): GRAEF Stefan

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16:30	2202	Surface treatment by ultrafast laser micromachining in GHz-burst mode MANEK-HÖNNINGER Inka (Invited)
17:00	730	High order nonlinear optical materials: unveiling the multiphoton absorption in outstand decafluorene molecule DE BONI Leonardo
17:15	1600	Laser-Induced Shockwave Spallation for High-Resolution 2D Patterning of Colloidal Monolayer LEE Jaejun
17:30	1740	Antifouling PEG Coatings by Thiol-Acrylate Conjugate Addition Reactions for Generation of Protein Patterns via Photobleaching-Induced Protein Binding (PiPB) BioBitmaps Using Maskless Projection Lithograph USAMA Ali
17:45	2180	Ultrafast laser-induced extrusion of high-aspect ratio nano-pillars BELLONI Valeria Viviana
18:00	2576	High-power laser micromachining of various materials using polarization singularities for shaping vector beams ORLOV Sergej
18:15	3113	Spatial beam shaping in nanoparticle synthesis by pulsed laser ablation in liquids: An approach for size control and productivity increase BULGAKOV Alexander
18:30	22	Holographic Processing of Optical Waveguides for Enhancing Upconversion Imaging Peng Haiyan

Tuesday May 27

005 Ultrashort high rate and ultra high power laser interaction

Chairperson(s): GRAEF Stefan

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08:30	1994	Ion acceleration with PW class laser beams at ELI-NP CERNAIANU Mihail (Invited)
09:00	143	Time-resolved photoemission electron microscopy of the near-field dynamics in silver nanowires excited by few-cycle short-wave infrared pulses ZAIATS Nelia

09:15	498	Ultrafast-laser powder bed fusion of TiO ₂ -Nb ₂ O ₅ mixtures for emerging environmental applications Gomez-Munoz Gonzalo
09:30	2575	Activating and tuning optoplasmonic response of dielectrics with deeply embedded nanoparticles under pulsed laser irradiation SOLANA Irene
09:45	2435	Optical thickness-profiling for fs-laser-induced superficial amorphization and oxide removal on silicon BONSE Jörn

Tuesday May 27

006 Laser Tailoring of materials : Thin film growth and particle production

Chairperson(s): STOIAN Razvan

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10:30	2832	Modeling Nanoparticle Synthesis and Surface Nanotexturing via Laser Ablation for Advanced Applications ITINA Tatiana (Invited)
11:00	56	Self-Healing in Photovoltaic Materials: Chemical Insights from Antimony Chalcogenides and Chalcohalides EDRI Eran
11:15	647	Dynamic Optical Trapping with Phase-Change Vanadium Oxide Nanoparticles TAHA Mohammad
11:30	1420	Unraveling Reduction and Quantum Confinement Effects in Graphene Oxide Induced by Laser Irradiation: Interplay of Theory and Experiment RICCIARELLI Damiano

Tuesday May 27

007 Laser Tailoring of materials : Thin film growth and particle production

Chairperson(s): STOIAN Razvan

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13:45	2121	Carbon - based nanomaterials / transition metal oxide / hydroxide hybrids synthesized by laser techniques for sunlight induced photocatalytic water cleaning GYORGY Eniko (Invited)
14:15	2509	Ultra-Sensitive Cavity-enhanced Microscope: A Paradigm for Advanced Optical Characterization FELIXBERGER Fabian

14:30	23	Laser Holographic Processing of Photopolymers for Augmented Reality and Virtual Reality Xie Xiaolin
14:45	2609	Laser induced carbon allotropes with superior properties towards a plethora of application PERVOLARAKI Maria
15:00	2639	Enabling High-Entropy Thin Films with Superior Properties by Pulsed Laser Deposition LANCOK Jan
15:15	2843	Heteroepitaxial growth of titanium carbide (TiCx, x = 0.55 – 1.0) thin films by pulsed laser deposition for hydrogen generation and storage CONSTANTINESCU Catalin
15:30	2888	Tuning the Aggregation of Metal Nanoparticles prepared by Laser Ablation with Halide Salt solutions CATANZARO Lucrezia

Tuesday May 27

OP02 Poster session 1

Chairperson(s): ASPE Barthélemy

ORLANDO Stefano

REBOLLAR Esther

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13:45	01_1579	Controlling the motion of charged species with chirped optical lattices VAISHNAV Ashwini
13:45	02_1875	Femtosecond Temporally Shaped Airy Pulses for Dicing Thin Soda-Lime Glass Samples FLORIAN Camilo
13:45	03_2189	In-situ monitoring of laser-induced dewetting of thin Ag films NOVOTNY Michal
13:45	04_2427	Responsive hybrid smart platforms engineered by MAPLE based laser method Rusen Laurentiu
13:45	05_2518	Fabrication of carbon-based nanocomposites by matrix-assisted pulsed laser evaporation DINESCU Maria
13:45	06_2624	Fabrication and functionalization of metal oxide nanostructures and thin films based on TiO ₂ /WO ₃ /SnO ₂ composites for enhanced gas-sensing by using PLD method STANKOVA Nadya

13:45	07_2683	Enhancing LIPSS Formation and Processing Efficiency on AlSi10Mg and AlMg with Temporal Pulse Shaping of Femtosecond Laser Pulses FIEDLER Florian
13:45	08_2688	Influencing Amorphization Fluence-Windows on Crystalline Silicon with Temporally Shaped Femtosecond Laser Pulses ZIELINSKI Bastian
13:45	09_2735	Bioactive Nickel-Doped Hydroxyapatite Thin Films: In Vitro Hyperthermia, Thermal, Magnetic, and Molecular Interaction Studies DUTA Liviu
13:45	10_2748	Characteristics of ultra-low density double layer targets for high intensity fs-laser-plasma interaction Irimiciuc Stefan Andrei
13:45	11_2750	Femtosecond Laser Induced Damage Threshold Measurements for HfO ₂ and ZrO ₂ Thin Films Irimiciuc Stefan Andrei
13:45	12_2792	Laser processing of soft magnetic materials as nanoparticles and thin films: a laser-induced forward transfer study CONSTANTINESCU Catalin
13:45	13_2795	Mechanistic study of Silver/Platinum Nanoplates synthesis and their application as reliable SERS substrate BRANCATO Antonio
13:45	14_2834	Method for Automatic Bird Tracking and Harmless Laser Repulsion LAN YUPIN
13:45	15_2879	Enhancing LIPSS Formation and Processing Efficiency on AlSi10Mg and AlMg with Temporal Pulse Shaping of Femtosecond Laser Pulses FIEDLER Florian
13:45	16_2897	Oxidation and laser synthesis of Ni nanoparticles: an atomistic analysis TOULIL Abderrazak
13:45	17_2907	Laser processing of 5,6,11,12-tetraphenyltetracene thin films for organic field-effect transistor (oFET) devices CONSTANTINESCU Catalin
13:45	18_2911	Angular distribution in pulsed electron beam deposition of complex oxide thin films NISTOR Magdalena
13:45	19_2930	Femtosecond Laser-Induced Breakdown Spectroscopy for Thin Film Analysis of Cu-Coated Polymer Textiles Elsheikh Omar
13:45	20_2938	Strain engineering of epitaxial perovskites based on LaFeO ₃ and BiFeO ₃ for photoelectrochemical water splitting ANDREI Florin

13:45	21_2961	Influence of Selenium doping on the structural, morphological, compositional, and mechanical properties of biologically-derived hydroxyapatite thin films DUTA Liviu
13:45	22_2995	UV Laser Irradiated Chlorpromazine in Breast Cancer Treatment UDREA Ana-Maria
13:45	23_3000	Compact Detection Systems for LIBS-Raman-Time-Resolved Luminescence in Deep-Land Exploration RICCI Carlo
13:45	24_3003	Enhancing the optical emission in Laser-Induced Breakdown Spectroscopy for Liquid Samples: Challenges and Solutions NOOR Ayesha
13:45	25_3050	Synthesis, structural properties and nonlinear optical response of some aromatic thioamides in bulk vs. laser-processed films CONSTANTINESCU Catalin
13:45	26_3055	Pentacene thin films and micro-arrays by laser processing: structural analysis & influence on cellular activity for applications in disposable organic electronics and sensing devices CONSTANTINESCU Catalin
13:45	27_3067	Amorphous vs nanocrystalline FeSi soft magnetic alloys: controlling the elemental composition in μm-thick ribbons by laser-induced breakdown spectroscopy CONSTANTINESCU Catalin
13:45	28_3101	A new laser-based technology for recycling glass FERNÁNDEZ-ARIAS Mónica
13:45	29_3121	Laser Ablation of Boron Target in Water: Characterization of Nanoparticles and Analysis of Produced Gases CARICATO Anna Paola
13:45	30_3124	Laser-Fabricated One-Dimensional Gold Nanostructures: Exploring Broadband Plasmonics and Catalysis Applications NOOR Ayesha
13:45	31_3156	Optimization of the laser-induced forward transfer process in electrode patterning for graphene-based chemo-resistive sensors Pachiu Cristina
13:45	32_3160	Colloidal gold nanoparticles synthesized by pulsed laser ablation in liquid for additive surface structuring via laser-induced forward transfer PASTUKHOV Andrei
13:45	33_363	Tribological Performance of Laser Surface Nitrided Ti-13Nb-13Zr using Diode Laser BERA Tapas

Wednesday May 28

009 Laser-induced forward transfer and additive manufacturing

Chairperson(s): FILIPESCU Mihaela

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08:30	2339	LIFTing Materials to New Applications PALLA-PAPAVLU Alexandra (Invited)
09:00	1522	Micron pattern transfer by laser ablation an approach without the need of vacuum equipment ZIMMER Klaus
09:15	2158	LIFT of solder materials and laser soldering of optoelectronic components for photonic applications MAKRYGIANNI Marina
09:30	2936	Laser processing of polymer photonic crystals as thin films: a laser-induced forward transfer study MOCANU Alexandra
09:45	3104	Blister-Actuated Laser-Induced Forward Transfer (BA-LIFT): Dynamics and Numerical Modeling for Process Optimization MORENO-LABELLA Juan José

Wednesday May 28

010 Time-resolved diagnostics for laser and plasma processing

Chairperson(s): DE GIACOMO Alessandro

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10:30	916	“Seeing” materials transform: Time-resolved optical probing during laser processing of semiconductors SIEGEL Jan (Invited)
11:00	1551	Probing Vibrational and Optoelectronic Characteristics of a Single Molecule FARRUKH Aftab
11:15	2171	Femtosecond Laser-Induced Breakdown Spectroscopy for Real-Time Composition Analysis of Nitinol Ryan Darragh
11:30	2580	Laser ablation of flat optics for structured light in nonparaxial terahertz imaging systems ORLOV Sergej
11:45	2920	Large-Scale Laser Processing of Organic and Inorganic Compounds for the Production of Graphene-Related Materials in Energy Storage Applications YANNOPOULOS Spyros

Wednesday May 28

OP03 Poster session 2

Chairperson(s): COSTANTINESCU Catalin

DINESCU Maria

MARTAN Jiri

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13:45	01_1092	Plasmonic nanostructures for high-sensitive analyses of water pollutant fabricated by laser methods NEDYALKOV Nikolay
13:45	02_1094	Plasmonic nanostructures for high-sensitive analyses of water pollutant fabricated by laser methods STANKOVA Nadya
13:45	03_1119	Tunable Optical Nonlinearities and Ultrafast Absorption Dynamics in a:SiNx Thin Films KURIAKOSE Albin
13:45	04_1168	A Biodegradable Mg-Zn-Zr-Ca -Alloy obtained by PBF-LB/M Processing RADUCANU Doina
13:45	05_1362	Modulation of device properties in InGaZnO thin film transistor using short pulse optical annealing CHOI Siyeon
13:45	06_1411	Laser Ablation Synthesis Offers Clearer Outlook on Water Surrounding Gold Nanoparticles Mukherjee Taritra
13:45	07_1625	Transient absorption spectroscopy of the Fucoxanthin-Chlorophyll a/c (FCPs) Proteins of the Marine Diatoms Fragilariopsis sp and P. tricornutum LOUKAKOS Panagiotis
13:45	08_1637	Structural properties and performance of thin-film noble metals PREPELITA Petronela
13:45	09_1684	Mechanism of laser ablation of atmospheric pressure etched BK7 surfaces for ultra-precise surface processing applications ZIMMER Klaus
13:45	10_1899	Synthesis of Strongly Confined Bi ₂ Te ₃ Quantum Dots by Pulsed Laser Ablation in Liquids SUBEDI Rajendra
13:45	11_2026	Laser surface treatments and their effect on the wettability of shape memory alloys BASSANI Paola
13:45	12_2103	Diamond shaped Rb ₃ Sb ₂ I ₉ Microcrystals: Structural and Optical Properties H ASHWATH Rakshitha

13:45	13_2242	N ₂ O gas sensors based on metal oxide nanostructures produced by PLD STANKOVA Nadya
13:45	14_2325	Mode-resolved plasmon – acoustic phonon interactions in acoustoplasmonic metamaterials DHIMAN Anuj Kumar
13:45	15_2355	Fibroblast, macrophage modulation and bacteria hindering through surface modification strategies DINCA Valentina
13:45	16_2395	Dielectric heterostructures prepared by PLD for laser mirrors Rusen Laurentiu
13:45	17_2461	Ion marker implantation for tracing the formation of femtosecond laser-induced periodic surface structures on steel BONSE Jörn
13:45	18_2547	Ultra-Sensitive Cavity-Enhanced Microscopy: A Novel Tool for Material Research HÜMMER Thomas
13:45	19_3161	Pulsed Laser Deposition of CuCrO ₂ as High-Performance p-Type Materials for Transparent Electronics Abbasi Shahab Ahmed
13:45	20_3165	Laser driven X-Ray photodynamic therapy for targeted cancer treatment UDREA Ana-Maria
13:45	21_414	Anti-inflammatory and antifibrotic capacity of coating obtained by Matrix Assisted Pulsed Laser Evaporation DINCA Valentina
13:45	22_486	Laser-Ablated Iron Oxide Nanoparticles on Flexible Substrates: Unlocking Superparamagnetic Potential in Magnetometers CHIECHIO Regina Maria
13:45	23_667	Fabrication and characterization of tungsten oxide layers for electrochromic device integration FILIPESCU Mihaela
13:45	24_706	Comparative Analysis of Laser Surface Alloying of Ti ₆ Al ₄ V with FeCoCrMnTi under Argon and Nitrogen Shielding RAJPUT Abhinay
13:45	25_708	High-Performance Coatings: Comprehensive Microstructural and Wear Behavior of Tribaloy™ T400 via Laser Metal Direct Energy Deposition on AISI 316 stainless steel. KUMAR Kishan
13:45	26_719	Advanced fluorescent materials for bioimaging: the role of diketopyrrolopyrrole derivatives in two-photon absorption applications DE BONI Leonardo

13:45	27_727	Exploring the Linear and Nonlinear Optical Properties of Donor-Acceptor Copolymers: A study involving the number of monomers and highlights on optical limiting applications DE BONI Leonardo
13:45	28_732	Photophysical properties of novel D ₂ -A-A-D ₂ type diquinoxaline derivatives for efficient multiphoton photoinitiation DE BONI Leonardo
13:45	29_733	Photophysical properties of a new photoinitiator for multiphoton polymerization: Benzoxazole derivatives DE BONI Leonardo
13:45	30_806	repetition rate effect during direct laser texturing of glass substrate by UV femtosecond beam ASPE Barthélemy
13:45	31_902	Vacancy-assisted Enhanced Nonlinearity and Optical Limiting Response of Two-dimensional Biotite. MITRA Dipanwita
13:45	32_975	Laser-Induced Micro- Nano-structuring of Titanium for Enhanced Bioactivity in Prosthetic Implants DE BONIS Angela
13:45	33_2183	Study and characterization of the gold nanoparticle's formation mechanism by re-irradiation of linear bromide induced gold nanoparticles chain PULVIRENTI Mario

Thursday May 29

012 Pulsed laser ablation in controlled atmosphere and liquids - 1

Chairperson(s): CARICATO Anna paola

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08:30	106	Applications of Plasmonic Nanoparticles as enhancers in laser ablation based techniques for analytical applications. DE GIACOMO Alessandro (Invited)
09:00	678	Iron Sulfide nanostructures from laser ablation for water splitting applications. LO PÒ Cristiano
09:15	833	Low plasma energy pulsed laser deposition under mixed O ₂ and Ar atmosphere for improvement of ferroelectric properties of epitaxial HfO ₂ films SANCHEZ Florencio
09:30	1216	LAL synthesis of metal/polymer nanohybrids with enhanced photocatalytic and antimicrobial properties DE BONIS Angela

Thursday May 29

013 Pulsed laser ablation in controlled atmosphere and liquids - 2

Chairperson(s): CARICATO Anna paola

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10:45	1226	Tuning Wettability of Graphene Oxide by Laser Induced Reduction in Liquids SCARDACI Vittorio
11:00	2197	Molybdenum Carbide nanoparticles produced by pulsed laser ablation in liquid for efficient hydrogen evolution reaction in alkaline conditions IACONO Valentina
11:15	3022	The Effect of Nanostructure and Wavelength on 4-NTP Dimerization BRANCATO Antonio
11:30	2638	Improving photocatalytic activity of selected oxynitride system by entropy tailoring and band gap engineering IRIMICIUC Stefan
11:45	3048	Combining laser ablation and Sol-Gel techniques for the synthesis of nanostructured of organic-inorganic matrices. HARO-PONIATOWSKI Emmanuel

Thursday May 29

014 Ultrafast laser micro- and nanostructuring: hunting for extreme scales

Chairperson(s): SIEGEL Jan

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13:45	48	Ultrafast laser extreme nanostructuring STOIAN Razvan (Invited)
14:15	195	Ultrafast Laser Inscription of Plasmonic Nanostructures in Dielectrics CHEN Feng
14:30	495	Pulsed laser deposition and fs-laser structuring of Ytterbium-doped Zinc Oxide films for environmental applications. Gonzalo Jose
14:45	1634	Extreme Light Infrastructure Target Engineering DINESCU Maria
15:00	2152	Non-Ablative Surface Modification of SiO ₂ /Si Substrates Using Ultrashort Laser Pulses: Formation of Conical Nanostructures Below the Ablation Threshold QAYYUM Hamza
15:15	2219	Challenges of batteries materials processing with femtosecond pulses and bursts of pulses AUDOUARD Eric

15:30	2685	Glass absorption enhancement using single burst of femtosecond pulses for USP laser processing DE AZEVEDO Baptiste
15:45	2824	Laser-assisted nano- and/or micro-fabrication for high resolution and cost-effective devices CONSTANTINESCU Catalin

Thursday May 29

015 Laser-processing for biomedical applications

Chairperson(s): PALLA-PAPAVLU Alexandra

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16:30	2038	Laser bioprinting for biochemical and medical applications ZERGIONI Ioanna (Invited)
17:00	961	Laser Isolation of Circulating Tumor Cells in Liquid Biopsy Molpeceres Carlos
17:15	250	Schwann Cell Alignment with fs-Laser Induced Micro- and Nano-Structures HEITZ Johannes
17:30	2089	Laser ablated nanoparticles for the development of new-generation wound dressings. Scarabelli Romain
17:45	2342	Laser structuration of multimetallic thin films for antibacterial/antiviral applications BIRNAL Pierre
18:00	2460	Laser Spinning: A novel approach to fabricate iodine-doped bioactive glass nanofibers for wound care FERNÁNDEZ-ARIAS Mónica
18:15	433	Stability assessment of three state-of-the-art CAD/CAM materi-als under human gingival cell culture GATIN Eduard
18:30	1452	Modification of titanium surfaces in water by nanosecond laser treatments TOMASHCHUK Iryna

Friday May 30

016 Industrial laser machining - 1

Chairperson(s): O'CONNORS Gerard

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08:30	436	Applications of Laser in Micro and Nanomachining SCHAAF Peter (Invited)
09:00	343	Development and validation of modeling software SURFwiX to guide high-precision machining of materials of industrial relevance LIPP Vladimir
09:15	811	2D Thermo-mechanical investigation of cw CO ₂ laser-induced damages on decorative glass CAPELLE Alex
09:30	1580	Laser ablation propulsion in confined geometry using thin confinement layers BATTOCCHIO Pietro
09:45	1792	Enhancing Laser Welding Predictability: A Parameter-Based Methodology Adapted for New Laser System Configurations and Capabilities HAYOT Victor

Friday May 30

017 Industrial laser machining - 2

Chairperson(s): O'CONNORS Gerard

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10:30	1795	Combination of laser processes for the fabrication of versatile and cost-effective Multi-Electrode Arrays (MEAs) with high sensitivity ROLANDO Enzo (Invited)
11:15	2953	Direct laser writing and laser sintering approach for large area, selective metallisation on porous surfaces relevant for high frequency antennas SHARIF Ayesha
11:30	129	Microstructural evolution and phase analysis of 5S410-Al2O3-SiC multilayered functionally graded composite fabricated through laser cladding MURUGESAN Ayyappan