TITLE: IONIC LIQUIDS-BASED INNOVATIVE SYNTHESIS OF Fe-Ru BIMETALLIC CATALYSTS FOR CO_2 HYDROGENATION: A SUSTAINABLE APPROACH TOWARDS NET-ZERO FUEL PRODUCTION

TITOLO IN ITALIANO: SINTESI INNOVATIVA DI CATALIZZATORI BIMETALLICI Fe-Ru PER L'IDROGENAZIONE Di CO_2 UTILIZZANDO LIQUIDI IONICI: UN APPROCCIO SOSTENIBILE VERSO LA PRODUZIONE DI FUELS A ZERO EMISSIONI NETTE

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Introduction

The use of a bifunctional catalysts capable of facilitating both the Reverse Water Gas Shift (RWGS) and Fischer−Tropsch reactions is crucial for efficiently converting CO2 into lower olefins (C2-C4), which is essential for sustainable chemical production and LPG. Recent research highlights the cost-effectiveness and efficacy of Fe-based catalysts, especially Fe/Ru bimetallic catalysts, in improving olefin selectivity. In this study, the application of ionic liquid solvents assumes a pivotal role, serving as nanosynthetic templates for the synthesis of Fe/Ru bimetallic catalysts. Unlike traditional solvents, ionic liquids offer enhanced stability to **M**etal **N**ano**P**articles (**MNP**s) owing to their elevated ionic charge, polarity, and supramolecular network. This innovative methodology enables precise modulation of stable MNPs synthesis, indispensable for ensuring stable catalytic performance in CO2 hydrogenation. Ionic liquids exhibit superior selectivity to hydrocarbons (HC) compared to conventional techniques, underscoring their potential in environmentally sustainable and scalable catalysis for the production of sustainable e-fuels.

Material and Methods

In our method [BmIm][BF_4] was employed as solvent with either $Fe(acac)_3$ or $Ru_3(CO)_{12}$ at 523 K for 18 hours. For bimetallic Fe-Ru NPs, three molar ratios (1:1, 3:1, and 9:1) were explored. These nanocatalysts were supported on γ-Al_2O_3 with variable metal loadings (1 or 4 wt.%). Characterization included XRF, XRD, SEM, and H_2 chemisorption analyses. Kinetic experiments were conducted at 593 K and 6 or 20 bar pressures, with adjustments to uphold CO_2 conversion below 5%. FT-IR gas analysis assessed yield and selectivity.

Results

Our study showcases the heightened cooperativity of bimetallic Fe and Ru species synthesized via the IL method, yielding superior activity and selectivity for LPG-range hydrocarbons over traditional colloidal synthesis.

Discussion

This study introduces an innovative method for synthesizing bimetallic 1% Fe-Ru catalysts using ionic liquids as solvents. Both mono(Fe)- and bimetallic catalysts Fe-Ru, prepared via the new method, demonstrate 12% higher selectivity towards C2–C5 hydrocarbons at 20 bar pressure, 5400 mL/h/gcat, and 320 °C, where the main product obsewrved is CH4, in contrast to the colloidal method catalysts with the same Fe:Ru ratio, which showed prominent selectivity to CO. For some catalysts, the selectivity to HC increases with lower space velocity from 0 to 15 %, . Increasing metal loading to 4 wt.% in the Fe-Ru 1:1 IL catalyst significantly boosts C2–C5 hydrocarbon generation to 13 %. The selectivity shift from

CO to methane and HC observed with IL-synthesized catalysts should be attributed to the synergistic interplay between iron and ruthenium, as confirmed by H_2-TPR reduction profiles, and the formation of iron carbide active species for Ftsynthes in reaction conditions.

DOMENICA 9 GIUGNO	LUNEDÌ 10 GIUGNO		MARTEDÌ 11 GIUGNO		MERCOLEDÌ 12 GIUGNO	
	Sessione Tematica 2 (T2) Transizione Ecologica & Energia		**Sessione Tematica 1 (T1) Manifatturiero & Aerospazio**		**Sessione Tematica 5 (T5) Scienze della Vita e dell'alimentazione**	
	8,45-9,10	**KN1 – Nicola Pinna** ***Novel materials chemistry for energy and environmental applications***	**8,45-9,10**	**KN4 – Fabio Ferracane**	8,45-9,10	**KN5 - Niloofar Tahmasebi Birgani** ***From micro-engineered biomaterials to mini-bones***
	9,10-9,22	O14 – Lo Presti SYNTHESIS AND LUMINESCENCE STUDY OF MOCVD-GROWN Eu-DOPED BaF_2 THIN FILMS FOR ENHANCED ENERGY CONVERSION PHOTOVOLTAIC APPLICATIONS	9,10-9,22	O37 – Aronne SOL-GEL SYNTHESIS OF NANOSTRUCTURED MATERIALS FOR QUANTUM SOURCES	9,10-9,22	O60 – Barbato ENHANCEMENT OF KRAFT PAPER PERFORMANCE WITH MODIFIED PVOH COATINGS FOR SUSTAINABLE FOOD PACKAGING
	9,22-9,34	O15 – Lamberti COPPER-BASED PHOTOELECTRODES DEVELOPMENT FOR HYDROGEN PRODUCTION	9,22-9,34	O38 – Ingrosso Ag NANOPARTICLES DECORATED REDUCED GRAPHENE OXIDE - SYNTHESIS AND EVALUATION OF LONG-TERM ANTIMICROBIAL ACTIVITY OF THE NOVEL HYBRID NANOCOMPOSITE AS A TEXTILE COATING	9,22-9,34	O61 – Biblioteca DIFFERENT CULTIVATION SYSTEMS FOR MORE ECO-SUSTAINABLE AND HEALTHY PRODUCTS: TRADITIONAL CULTIVATION VS HYDROPONIC SYSTEM FOR NICKEL-FREE TOMATO
	9,34-9,46	O16 – Duranti L. MULTIPURPOSE ELECTRODE FOR SYMMETRIC CO_2-SOECS	9,34-9,46	O39– Bavasso PLASMA-ASSISTED GROWTH OF CARBON NANOTUBES ON CONTINUOUS FIBERS AS REINFORCING AGENTS IN MULTIFUNCTIONAL POLYMER COMPOSITES	9,34-9,46	O62 – Cabrini MONTMORILLONITE/ GRAPHENE OXIDE AND CHITOSAN-BASED THIN FILMS WITH HIGH OXYGEN BARRIER AT HIGH HUMIDITY
	9,46-9,58	O17 – Rizzuto A PERFLUORINATED MIL-140A(CE)-BASED MIXED MATRIX MEMBRANES FOR CO_2 CAPTURE	9,46-9,58	O49 – Licheri FABRICATION OF HIGH ENTROPY DIBORIDE - SiC COMPOSITES THROUGH SELF PROPAGATING HIGH TEMPERATURE SYNTHESIS AND SPARK PLASMA SINTERING	9,46-9,58	O63 – Cadeddu DESIGN OF DUAL-EMITTING NONAROMATIC FLUORESCENT POLYMERS THROUGH THERMAL TREATMENT OF L-GLUTAMIC ACID AND L-LYSINE
	9,58-10,10	O18 – Colombo V. ADSORPTION PROCESSES IN METAL-ORGANIC FRAMEWORKS: IN SITU INSIGHTS FROM COMBINED X-RAY TECHNIQUES	9,58-10,10	O41 – Biesuz RAPID FIRING OF 3YSZ: ON THE HEATING RATE IMPACT ON SINTERIN, PROPERTIES AND MICROSTRUCTURE	9,58-10,10	O64 – Danti ELECTROSPUN BACTERIAL CELLULOSE SCAFFOLDS COATED WITH ELECTROSPRAYED CHITIN NANOFIBRILS FOR EARDRUM REPAIR
	10,10-10,22	O19 – Scorciapino COMPUTATIONAL STUDY OF THE IMPACT OF AMINOPROPYL UNITS ON PHYSISORPTION OF CO_2 AND CH_4 IN MESOSTRUCTURED SILICA	10,10-10,22	O42 – Calisi LEAD HALIDE PEROVSKITES AS SENSITIVE MATERIALS FOR SOFT X-RAY RADIATION DETECTION IN SPACE ENVIRONMENTS	10,10-10,22	O65 – Graziani NEW ANTIBACTERIAL DRESSINGS FOR THE TREATMENT OF SURGICAL AND NON-SURGICAL WOUNDS IN SPINE SURGERY
	10,22-10,34	O20 – Perathoner THE DANTE PROJECT: THE INSTM-ENI COOPERATION FOR CO_2 CONVERSION TO E-FUELS THROUGH AN INNOVATIVE APPROACH	10,22-10,34	O43 – Casu M. PROCESSING AND CHARACTERIZATION OF DENSE $(Zr_{0.5}Ta_{0.5})B_2$ AND $(Zr_{0.5}Hf_{0.5})B_2$ ULTRA HIGH TEMPERATURE CERAMICS	10,22-10,34	O66 – Lucignano HUMAN H-CHAIN FERRITIN: A MULTITASKING SYSTEM FOR THE DESIGN OF NANOSTRUCTURED BIOMATERIALS
	10,34-10,46	O21 - Mulas CO_2 CONVERSION THROUGH CARBONATION OF SILICATE BASED SYSTEMS INDUCED BY MECHANICAL TREATMENT: REACTIVITY AND KINETIC FEATURES	10,34-10,46	O44 – Bemporad INTEGRATING HIGH-SPEED NANOINDENTATION AND MACHINE LEARNING: A NEW PARADIGM FOR ADVANCED STEEL DESIGN AND QUALITY ASSESSMENT	10,34-10,46	O67 – Rizzi ADVANCED STIMULI RESPONSIVE NANOSTRUCTURES: MESOPOROUS SILICA CORE@SHELL ARCHITECTURES WITH DAHLIA-LIKE MORPHOLOGY AS INNOVATIVE SMART DRUG DELIVERY PLATFORMS TO FIGHT COLORECTAL CANCER
	10,46-11,15 Coffee break (sala Terrazza)		*10,46– 11.15 Coffee break (sala Terrazza)*		*10,46- 11,15 Coffee break (sala Terrazza)*	
	Sessione Tematica 3 (T3) Economia verde e circolare		**Sessione Tematica 1 (T1) Manifatturiero & Aerospazio**		**Sessione Tematica 5 (T5) Scienze della Vita e dell'alimentazione**	
	11,15-11,40	**KN2 – Michela Signoretto** ***From waste to product: examples of circularity***	11,15-11,27	O45 – La Mantia MICROPLASTICS POLLUTION: MAIN SOURCES AND THE ROLE OF THE PLASTICS INDUSTRY	11,15-11,27	O68 – Montalbano DESIGN OF SMART PLATFORMS FOR APPLICATIONS IN TISSUE REGENERATION AND BIOMARKER DETECTION

	11,40- 11,52	O22 – Acocella GREEN FUNCTIONALIZATION OF TORREFIED BIOMASS VIA MECHANOCHEMICAL APPROACH: NEW OPPORTUNITIES FOR FILLER PRODUCTION	11,27- 11,39	O46 – Frache DEVELOPMENT OF A PP-BASED MATERIAL WITH FLAME RETARDANT PROPERTIES FOR 3D PRINTING	11,27- 11,39	O69 – Milanese PREPARATION AND CHARACTERISATION OF FDM 3D-PRINTED BIOCOMPOSITE SCAFFOLDS FOR BIOMEDICAL APPLICATIONS
	11,52- 12,04	O23 – Alessandri WASTE-BASED HYDROGELS FOR ENVIRONMENTAL AND AGRICULTURAL APPLICATIONS	11,39- 11,51	O47 – Mariani STAMPA 3D DI MESCOLE ELASTOMERICHE FOTOCURABILI RINFORZATE CON SWCNT, MWCNT, CF E SILICE	11,39- 11,51	O70 – Simonetti 3D PRINTING OF LIQUID CRYSTAL ELASTOMERS AS ARTIFICIAL MUSCLES
	12,04- 12,16	O24 - Comite PVDF-BASED MICROPOROUS LAYER BY PHASE INVERSION TECHNIQUE USING GREEN SOLVENTS	11,51- 12,03	O48 – Rossetti HARNESSING POLYETHYLENEIMINE IN 3D PRINTING FOR TUNABLE HETEROGENEOUS CATALYSTS	11,51- 12,10	**Chair: Cecilia Bartuli, Maria Lucia Curri** Intervento Prorettore ricerca UNICA prof. Luciano Colombo
	12,16- 12,28	O25 – Crucianelli DEEP EUTECTIC SOLVENTS ASSISTED GROWTH OF MAGNETIC NANOPARTICLES: A CORRELATION STUDY	12,03- 12,15	O49 – Sciancalepore POLYMER NANOCOMPOSITES AS INNOVATIVE ENCODING/DECODING MAGNETIC TAGS	12,10- 12,30	**Premiazioni orali/poster**
	12,28- 12,40	O26 – Filippone ENHANCING THE BIODEGRADATION KINETICS OF PLA USING HEMP SHIVE FIBERS	12,15- 12,30	050 - Valentini L. CONTROLLING THE CONFORMATION OF REDISSOLVED SILK FIBROIN FOR PRINTABLE MULTIFUNCTIONAL 3D MATERIALS	12,30- 12,37	Donne nella scienza (7 minuti)
	12,40- 12,52	O27 – Garbarino OPPORTUNITIES IN SEAWATER USES: APPLICATIONS AND CIRCULAR ECONOMY			12,37- 12,44	Donne nella scienza (7 minuti)
	12,52- 13,04	O28- Levi CHARACTERIZATION AND COMPARISON OF VIRGIN AND RECYCLED POLYPROPYLENE FILAMENT FEEDSTOCKS FOR FUSED FILAMENT FABRICATION 3D PRINTING			12,44- 12,51	Donne nella scienza (7 minuti)
					12,51- 13,10	**Lancio XV Congresso INSTM** (Antonio Comite, Davide Peddis, Università di Genova) **Conclusions and Final remarks** (F.Bondioli, A. Caneschi)
14,00-15,15 **REGISTRAZIONE**	*13,04-14,30 Pausa **pranzo** (sala Terrazza)*		*13,00-14,30 Pausa **pranzo** (sala Terrazza)*			
	Chair:					
	14,30- 14,42	Giulio Oliviero BILANCIO DI SOSTENIBILITÀ INSTM	**Sessione Tematica 3 (T3) Economia Verde e Circolare**			
	Sessione Tematica 4 (T4) Costruito e Patrimonio Culturale		14,30- 14,42	O51 - Maio RAPID PREPARATION OF POLYMER-BASED HIERARCHICAL STRUCTURES		
	14,42- 15,07	**KN3 – Silvia Prati** ***Towards the development of green strategies for the conservation of cultural heritage: the GOGREEN and SUPERSTAR projects***	14,42- 14,54	O52 - Manzoli PLAYING WITH THE SIZE OF GOLD TO DESIGN TAILORED CATALYSTS AND WIN THE MATCH OF METHYL-2-FUROATE SUSTAINABLE PRODUCTION		
	15,07- 15,19	O29 – Caioni A NOVEL MULTIFUNCTIONAL FINISH FOR THE ENHANCEMENT OF INDOOR AIR QUALITY: THE MAMMUT PROJECT	14,54- 15,06	O53 – Rossi D. COMPOSITI PER APPLICAZIONI AUTOMBILISTICHE A BASE DI RETI DA PESCA RICICLATE E BIOCHAR		
	15,19- 15,31	O30 - Cedillo Gonzàlez HYPOTHETICAL RESTORATION OF BUILDING HERITAGE OF 1900 USING SECONDARY RAW MATERIALS-DERIVED PORCELAIN STONEWARE TILES WITH SOLAR REFLECTIVE CHARACTERISTICS: A CASE STUDIO	15,06- 15,18	O54 - Olla A SYNERGIC COMPUTATIONAL AND EXPERIMENTAL APPROACH TO CORRELATE STRUCTURE AND PROPERTIES IN CARBON DOTS		

15,15-15,30	Opening (F. Bondioli, A. Caneschi, Cecilia, M. Lucia, C.O.)	15,31-15,43	O31 – Ferone USE OF GEOPOLYMER-BASED MATERIALS CONTAINING PORCELAIN STONEWARE WASTE IN RESTORATION OF CULTURAL HERITAGE	15,18-15,30	O55 – Perotto VALORIZATION OF BIOMASS INTO HIGH VALUE PRODUCTS: OIL-BASED COATINGS AND THERMOSETS	
15,30-15,45	Saluto istituzionale Rettore UNICA o Prorettore prof. Fabrizio Pilo	15,43-15,55	032 – Cioffi HIGH-PERFORMANCE ARTIFICIAL LIGHTWEIGHT AGGREGATES BASED ON CEMENT, SILICA FUME AND MSWI FLY ASH	15,30-15,42	O56 – Dominici EFFECT OF PHENOL-RICH EXTRACT FROM CHESNUT (CSW) WASTES ON THERMAL, MECHANICAL, ANTIOXIDANT AND ANTIMICROBIAL PROPERTIES OF POLYLACTIC ACID FILMS	
15,45-16,00	**Chair: Alberto Cigada** Teodoro Valente IL SISTEMA SPAZIO ITALIA: SFIDE E OPPORTUNITÀ	15,55-16,07	O33 – Menegazzo FUNCTIONALIZED SILICA NPs FOR THE CONTROLLED RELEASE OF ANTIMICROBIALS TO PROTECT CULTURAL HERITAGE FROM BIODETERIORATION	15,42-15,54	O57 – Sambri 3D-PRINTING VIA VAT PHOTOPOLYMERIZATION: SUSTAINABLE BIOBASED RESINS CONTAINING LUMINESCENT ADDITIVES	
16,00-16,15	Alessandro Viviani IL RUOLO DI AMBROSETTI EUROPE NEL TRASFERIMENTO TECNOLOGIVO NEL CAMPO DEI MATERIALI	16,07-16,19	O34 – Porcu PRESERVING ART: SCIENTIFIC IN-DEPTH STUDY ON THE DEGRADATION OF CADMIUM PIGMENTS	15,54-16,06	O58 – Scarpelli ENHANCING NANOCELLULOSE-BASED MATERIAL PROPERTIES THROUGH INORGANIC COMPOUND ADDITION: A PATH TO ADVANCED PERFORMANCE	
Sessione Tematica 2 (T2) Transizione Ecologica & Energia		16,19-16,31	O35 – Taglieri ON-SITE PERFORMANCES OF A NEW NANOLIME, OBTAINED BY A SUSTAINABLE AND LARGE-SCALE PROCESS, FOR CONSERVATIVE TREATMENTS OF HISTORIC, ARTISTIC AND ARCHITECTONIC SURFACES	16,06-16,18	O59 – Tabanelli ENHANCED REDUCTIVE CATALYTIC FRACTIONATION OF RAW POPLAR WOOD SAWDUST WITH A MAGNETIC RECYCLABLE CATALYST	
16,15-16,27	O1 – Sessoli MAGNETIC MOLECULES FOR QUANTUM INFORMATION: THE CHALLENGE OF SINGLE SPIN ADDRESSING	16,31-16,43	O36 – Sambucci VALORIZATION PATHWAY FOR METALLURGICAL BY-PRODUCTS OF THE PORTOVESME S.R.L. PLANT IN CEMENT-BASED MATERIALS FORMULATION: MECHANICAL, TECHNOLOGICAL BEHAVIOUR AND ENVIRONMENTAL ANALYSIS			
16,27-16,39	O2 – Peddis DESIGN, SYNTHESIS, AND PROCESSING OF EXCHANGE-COUPLED NANOCOMPOSITES FOR ADVANCED PERMANENT MAGNETS					
16,39-16,51	O3 – Quochi PHOTOPHYSICAL PROPERTIES OF NEAR-INFRARED EMITTING LANTHANIDE-BASED HALIDE DOUBLE PEROVSKITES	*16,43-17,15 Coffee break* (sala Terrazza)		*16,45-17,15 Coffee break* (sala Terrazza)		
16,51-17,03	O4 – Veneri ENVIRONMENTALLY FRIENDLY PATHWAY TO KESTERITE NANOPARTICLES WITH CONTROLLABLE TIN CONTENT: AN IN-DEPTH STUDY OF MAGNETICAL AND OPTICAL PROPERTIES	***Sessioni Parallele Sala Castello Chair: Federica Bondioli***	***Sessioni Parallele Sala Villanova Chair: Cecilia Bartuli***	***Sessioni Parallele Sala Castello Chair: Andrea Caneschi***	***Sessioni Parallele Sala Villanova Chair: Maria Lucia Curri***	
17,03-17,15	O5 – Bonelli METHODS TO CONTROL THE PHASE COMPOSITION AND TO TUNE THE LIGHT ABSORPTION PROPERTIES OF NANOMETRIC TiO_2 FOR SUSTAINABLE PHOTOCATALYTIC REACTIONS	17,15-17,20	SO1 - Alberti (T1)	SO15 - Favuzzi (T5)	17,15-17,20	SO28 - Gallichi (T3)	SO42 - Spennati (T2)	
17,15-17,27	O6 – Carpanese ELETTRODI A POROSITÀ GRADUALE PER CELLE AD OSSIDI SOLIDI PRODOTTI TRAMITE FREEZE TAPE CASTING ED INFILTRAZIONE	17,20-17,25	SO2 - Cheng (T1)	SO16 - Ghisoni (T5)	17,20-17,25	SO29 - Garofalo (T3)	SO43 - Valentini F. (T2)	
17,27-17,39	O7 – Castro ENHANCING PHOTOELECTROCHEMICAL PERFORMANCES OF FTO SUBSTRATES WITH METAL-ORGANIC FRAMEWORK FILMS	17,25-17,30	SO3 - Chiappone (T1)	SO17 - Gulino (T5)	17,25-17,30	SO30 - Montini (T3)	S044 - Rusta (T2)	

17,39-17,51	O8 – Colombo A. NOVEL PERYLENE DIIMIDE DERIVATIVES AS EFFICIENT LUMINOPHORES IN LUMINESCENT SOLAR CONCENTRATORS	17,30-17,35	SO4 - Atzori (T2)	SO18 - Bonaccorsi (T3)	17,30-17,35	SO31 – Gigante G. (T1)	SO45 - Sebastiani (T2)	
17,51-18,03	O9 – Triolo LITHIUM-ION BATTERY ANODES BASED ON $(Mn_{1/5}Fe_{1/5}Co_{1/5}Ni_{1/5}Zn_{1/5})_3O_4$ NANOFIBERS: CHARGE STORAGE MECHANISM	17,35- 17.40	SO5 - Bombaci (T2)	SO19 - Calovi (T3)	17,35- 17.40	SO32 - Lerda (T1)	SO46 - Mureddu (T3)	
18,03-18,15	O10 – Cattelan OPERANDO STUDY OF COBALT-ALUMINUM LDH FOR OXYGEN EVOLUTION REACTION	17,40-17,45	SO6 - Casu A. (T2)	SO20 - Cera (T3)	17,40-17,45	SO33 - Martinuzzi (T1)	SO47 - Noè (T3)	
18,15-18,27	O11 – Fasulo ROLE OF SURFACE IR-OXO SPECIE IN TUNING MOLECULAR OXYGEN EVOLUTION ELECTROCATALYSIS BY IRIDIUM OXIDE: NEW INSIGHTS FROM MULTIREFERENCE CALCULATIONS	17,45-17,50	SO7 - Seyed Sepehr Moeini (T4)	SO21 - Di Bartolomeo (T2)	17,45-17,50	SO34 - Muscas (T1)	SO48 - Padovano (T1)	
18,27-18,39	O12 – Gallo FUNCTIONALIZATION OF SILICA WITH AMINES BY MEANS OF SUPERCRITICAL CO_2	17,50-17,55	SO8 - Sanfilippo (T4)	SO22 - Maddaloni (T2)	17,50-17,55	SO35 - Liboà (T5)	SO49 - Rigotti (T1)	
18,39-18,51	O13 – Gamberini BLENDS OF POLYLACTIC ACID WITH BIOBASED, CHEMICALLY RECYCLABLE, AND SELF-HEALABLE THERMOSET	17,55-18,00	SO9 - Cagna (T5)	SO23 - Sidoli (T2)	17,55-18,00	SO36 - Milazzo (T5)	SO50 - Rizzo (T1)	
		18,00-18,05	SO10 - De Leo (T5)	SO24 - Murgia F. (T2)	18,00-18,05	SO37 - Olia (T5)	SO51 - Ruggiu (T3)	
		18,05-18,10	SO11 - Aliotta (T3)	SO25 - Coppola (T1)	18,05-18,10	SO38 - Panebianco (T5)	SO52 - Rossitti (T3)	
		18,10-18,15	SO12 - Balestra(T3)	SO26 - Gamba (T1)	18,10-18,15	SO39 - Ricci V. (T2)	SO53 - Soave (T3)	
		18,15-18,20	SO13 - Balsamo (T3)	SO27 - Cristoforetti (T1)	18,15- 18,20	SO40 - Secci (T2)	SO54 - Rossi E. (T1)	
		18,20-18,25	SO14 - Barbi (T3)		18,20- 18,25	SO41 - Signorile (T2)	SO55 - Yazdani (T1)	
19,00-21,00 Welcome Party **I Sessione Poster (Sala Terrazza)**		**19,00 -20,30 Aperitivo** **II Sessione Poster (Sala Terrazza)**			**20,00 Appuntamento alle 20:00** **Trasferimento al Ristorante 20,30 CENA SOCIALE**			

DOMENICA 9 GIUGNO 2024	
14:00-15,15	**REGISTRATION**
15,15-15,30	Opening (F. Bondioli, A. Caneschi, Cecilia, M. Lucia, C.O.)
15,30-15,45	Saluto istituzionale Rettore UNICA o Prorettore prof. Fabrizio Pilo
Chair: Alberto Cigada	
15,45-16,00	Teodoro Valente IL SISTEMA SPAZIO ITALIA: SFIDE E OPPORTUNITÀ
16,00-16,15	Alessandro Viviani IL RUOLO DI AMBROSETTI EUROPE NEL TRASFERIMENTO TECNOLOGICO NEL CAMPO DEI MATERIALI
Sessione Tematica 2 **Transizione Ecologica & Energia**	
16,15-16,27	O1 – Sessoli MAGNETIC MOLECULES FOR QUANTUM INFORMATION: THE CHALLENGE OF SINGLE SPIN ADDRESSING
16,27-16,39	O2 – Peddis DESIGN, SYNTHESIS, AND PROCESSING OF EXCHANGE-COUPLED NANOCOMPOSITES FOR ADVANCED PERMANENT MAGNETS
16,39-16,51	O3 – Quochi PHOTOPHYSICAL PROPERTIES OF NEAR-INFRARED EMITTING LANTHANIDE-BASED HALIDE DOUBLE PEROVSKITES
16,51-17,03	O4 – Veneri ENVIRONMENTALLY FRIENDLY PATHWAY TO KESTERITE NANOPARTICLES WITH CONTROLLABLE TIN CONTENT: AN IN-DEPTH STUDY OF MAGNETICAL AND OPTICAL PROPERTIES
17,03-17,15	O5 – Bonelli METHODS TO CONTROL THE PHASE COMPOSITION AND TO TUNE THE LIGHT ABSORPTION PROPERTIES OF NANOMETRIC TiO_2 FOR SUSTAINABLE PHOTOCATALYTIC REACTIONS
17,15-17,27	O6 – Carpanese ELETTRODI A POROSITÀ GRADUALE PER CELLE AD OSSIDI SOLIDI PRODOTTI TRAMITE FREEZE TAPE CASTING ED INFILTRAZIONE
17,27-17,39	O7 – Castro ENHANCING PHOTOELECTROCHEMICAL PERFORMANCES OF FTO SUBSTRATES WITH METAL-ORGANIC FRAMEWORK FILMS
17,39-17,51	O8 – Colombo A. NOVEL PERYLENE DIIMIDE DERIVATIVES AS EFFICIENT LUMINOPHORES IN LUMINESCENT SOLAR CONCENTRATORS
17,51-18,03	O9 – Triolo LITHIUM-ION BATTERY ANODES BASED ON $(Mn_{1/5}Fe_{1/5}Co_{1/5}Ni_{1/5}Zn_{1/5})_3O_4$ NANOFIBERS: CHARGE STORAGE MECHANISM
18,03-18,15	O10 – Cattelan OPERANDO STUDY OF COBALT-ALUMINUM LDH FOR OXYGEN EVOLUTION REACTION
18,15-18,27	O11 – Fasulo ROLE OF SURFACE IR-OXO SPECIE IN TUNING MOLECULAR OXYGEN EVOLUTION ELECTROCATALYSIS BY IRIDIUM OXIDE: NEW INSIGHTS FROM MULTIREFERENCE CALCULATIONS
18,27-18,39	O12 – Gallo FUNCTIONALIZATION OF SILICA WITH AMINES BY MEANS OF SUPERCRITICAL CO_2
18,39-18,51	O13 – Gamberini BLENDS OF POLYLACTIC ACID WITH BIOBASED, CHEMICALLY RECYCLABLE, AND SELF-HEALABLE THERMOSET
19,00-21,00 Welcome Party **I Sessione Poster (Sala Terrazza)**	

LUNEDÌ 10 GIUGNO

	Sessione Tematica 2 **Transizione Ecologica & Energia**
8,45-9,10	**KN1 – Nicola Pinna** ***Novel Materials Chemistry for Energy and Environmental Applications***
9,10-9,22	O14 – Lo Presti SYNTHESIS AND LUMINESCENCE STUDY OF MOCVD-GROWN Eu-DOPED BaF_2 THIN FILMS FOR ENHANCED ENERGY CONVERSION PHOTOVOLTAIC APPLICATIONS
9,22-9,34	O15 – Lamberti COPPER-BASED PHOTOELECTRODES DEVELOPMENT FOR HYDROGEN PRODUCTION
9,34-9,46	O16 – Duranti L. MULTIPURPOSE ELECTRODE FOR SYMMETRIC CO_2-SOECS
9,46-9,58	O17 – Rizzuto A PERFLUORINATED MIL-140A(CE)-BASED MIXED MATRIX MEMBRANES FOR CO_2 CAPTURE
9,58-10,10	O18 – Colombo V. ADSORPTION PROCESSES IN METAL-ORGANIC FRAMEWORKS: IN SITU INSIGHTS FROM COMBINED X-RAY TECHNIQUES
10,10-10,22	O19 – Scorciapino COMPUTATIONAL STUDY OF THE IMPACT OF AMINOPROPYL UNITS ON PHYSISORPTION OF CO_2 AND CH_4 IN MESOSTRUCTURED SILICA
10,2210,34	O20 – Perathoner THE DANTE PROJECT: THE INSTM-ENI COOPERATION FOR CO2 CONVERSION TO E-FUELS THROUGH AN INNOVATIVE APPROACH
10,34-10,46	O21 – Mulas CO_2 CONVERSION THROUGH CARBONATION OF SILICATE BASED SYSTEMS INDUCED BY MECHANICAL TREATMENT: REACTIVITY AND KINETIC FEATURES
10,46-11,15 Coffee break (sala Terrazza)	
	Sessione Tematica 3 **Economia verde e circolare**
11,15-11,40	**KN2 – Michela Signoretto** ***From waste to product: examples of circularity***
11,40-11,52	O22 – Acocella GREEN FUNCTIONALIZATION OF TORREFIED BIOMASS VIA MECHANOCHEMICAL APPROACH: NEW OPPORTUNITIES FOR FILLER PRODUCTION
11,52-12,04	O23 – Alessandri WASTE-BASED HYDROGELS FOR ENVIRONMENTAL AND AGRICULTURAL APPLICATIONS
12,04-12,16	O24 – Comite PVDF-BASED MICROPOROUS LAYER BY PHASE INVERSION TECHNIQUE USING GREEN SOLVENTS
12,16-12,28	O25 – Crucianelli DEEP EUTECTIC SOLVENTS ASSISTED GROWTH OF MAGNETIC NANOPARTICLES: A CORRELATION STUDY
12,28-12,40	O26 – Filippone ENHANCING THE BIODEGRADATION KINETICS OF PLA USING HEMP SHIVE FIBERS
12,40-12,52	O27 – Garbarino OPPORTUNITIES IN SEAWATER USES: APPLICATIONS AND CIRCULAR ECONOMY
12,52-13,04	O28 – Levi CHARACTERIZATION AND COMPARISON OF VIRGIN AND RECYCLED POLYPROPYLENE FILAMENT FEEDSTOCKS FOR FUSED FILAMENT FABRICATION 3D PRINTING
*13,04-14,30 Pausa **pranzo** (sala Terrazza)*	

Chair:	
14,30-14,42	Giulio Oliviero BILANCIO DI SOSTENIBILITÀ INSTM
Sessione Tematica 4 Costruito e Patrimonio Culturale	
14,42-15,07	**KN3 – Silvia Prati** TOWARDS THE DEVELOPMENT OF GREEN STRATEGIES FOR THE CONSERVATION OF CULTURAL HERITAGE: THE GOGREEN AND SUPERSTAR PROJECTS
15,07-15,19	O29 – Caioni A NOVEL MULTIFUNCTIONAL FINISH FOR THE ENHANCEMENT OF INDOOR AIR QUALITY: THE MAMMUT PROJECT
15,19-15,31	O30 – Cedillo Gonzàlez HYPOTHETICAL RESTORATION OF BUILDING HERITAGE OF 1900 USING SECONDARY RAW MATERIALS-DERIVED PORCELAIN STONEWARE TILES WITH SOLAR REFLECTIVE CHARACTERISTICS: A CASE STUDIO
15,31-15,43	O31 – Ferone USE OF GEOPOLYMER-BASED MATERIALS CONTAINING PORCELAIN STONEWARE WASTE IN RESTORATION OF CULTURAL HERITAGE
15,43-15,55	032 – Cioffi HIGH-PERFORMANCE ARTIFICIAL LIGHTWEIGHT AGGREGATES BASED ON CEMENT, SILICA FUME AND MSWI FLY ASH
15,55-16,07	O33 – Menegazzo FUNCTIONALIZED SILICA NPs FOR THE CONTROLLED RELEASE OF ANTIMICROBIALS TO PROTECT CULTURAL HERITAGE FROM BIODETERIORATION
16,07-16,19	O34 – Porcu PRESERVING ART: SCIENTIFIC IN-DEPTH STUDY ON THE DEGRADATION OF CADMIUM PIGMENTS
16,19-16,31	O35 – Taglieri ON-SITE PERFORMANCES OF A NEW NANOLIME, OBTAINED BY A SUSTAINABLE AND LARGE-SCALE PROCESS, FOR CONSERVATIVE TREATMENTS OF HISTORIC, ARTISTIC AND ARCHITECTONIC SURFACES
16,31-16,43	O36 – Sambucci VALORIZATION PATHWAY FOR METALLURGICAL BY-PRODUCTS OF THE PORTOVESME S.R.L. PLANT IN CEMENT-BASED MATERIALS FORMULATION: MECHANICAL, TECHNOLOGICAL BEHAVIOUR AND ENVIRONMENTAL ANALYSIS
16,43-17,15 Coffee break (sala Terrazza)	

Sessioni Parallele Sala Castello Chair: Federica Bondioli		***Sessioni Parallele Sala Villanova Chair: Cecilia Bartuli***
17,15-17,20	SO1 – Alberti (T1) IRON (III) ANCHORED ON SILICA NANOPARTICLES AS CURING ACTIVATOR FOR RUBBER VULCANIZATION	SO15 – Favuzzi (T5) THE ROLE OF SOL-GEL NANOCOATINGS IN THE CONTEXT OF ANTIBACTERIAL/ANTIVIRAL ADVANCED HIGH-TRAFFIC SURFACES
17,20-17,25	SO2 – Cheng (T1) MECHANICAL PROPERTIES OF SINTERLESS 3D PRINTED SILICA GLASS: A MULTI-TECHNIQUE COMPARATIVE STUDY	SO16 – Ghisoni (T5) CUTICLE-LIKE MORPHOLOGY OBTAINED VIA SOL-GEL SYNTHESIS
17,25-17,30	SO3 – Chiappone (T1) VAT 3D PRINTING OF IONICALLY CONDUCTIVE POLYMERS FOR TACTILE SENSORS	SO17 - Gulino (T5) PREPARAZIONE E CARATTERIZZAZIONE DI MEMBRANE DI PVA OTTENUTE MEDIANTE HEAT ASSISTED SOLUTION BLOW SPINNING
17,30-17,35	SO4 – Atzori (T2) MESOPOROUS Ni/Zr MIXED OXIDES FOR THE CATALYTIC DRY REFORMING OF METHANE	SO18 – Bonaccorsi (T3) ADSORBENT COMPOSITE MATERIALS FOR HEAT STORAGE AT LOW TEMPERATURE
17,35- 17.40	SO5 – Bombaci (T2) PRODUCTION, CHARACTERIZATION, AND APPLICATION OF NANOSTRUCTURED SPINEL FERRITE MOCVD FILMS FOR WATER SPLITTING	SO19 – Calovi (T3) A SUSTAINABLE MULTILAYER COATING WITH CURCUMIN-DERIVED PIGMENT AND RICE BRAN WAX ADDITIVE
17,40-17,45	SO6 – Casu A. (T2) UNDERSTANDING THE WORKING MECHANISM OF THERMALLY PROMOTED IN SITU CATION EXCHANGE AT THE SOLID STATE IN A TRANSMISSION ELECTRON	SO20 – Cera (T3) BIO-CHEMICALS-BASED RECYCLING FOR HARD-METAL WASTES VALORISATION

	MICROSCOPE	
17,45-17,50	SO7 – Seyed Sepehr Moeini (T4) SELF-HEALING BIO-CONCRETE: DEVELOPMENT AND CHARACTERIZATION OF AN INNOVATIVE GREEN MATRIX.	SO21 – Di Bartolomeo (T2) ELETTRODI CON PROPRIETÀ MULTICATALITICHE PER CELLE AD OSSIDI SOLIDI SIMMETRICHE E REVERSIBILI
17,50-17,55	SO8 – Sanfilippo (T4) EFFECT OF CALCIUM HYDROXIDE INNOVATIVE TREATMENT ON THE PROPERTIES OF SISAL FIBERS AND THEIR GEOPOLYMER COMPOSITES	SO22 – Maddaloni (T2) IONIC LIQUIDS-BASED INNOVATIVE SYNTHESIS OF Fe-Ru BIMETALLIC CATALYSTS FOR CO_2 HYDROGENATION: A SUSTAINABLE APPROACH TOWARDS NET-ZERO FUEL PRODUCTION
17,55-18,00	SO9 – Cagna (T5) SURFACE ACTIVATION OF MEDICAL-GRADE TITANIUM DISCS BY CHEMICAL AND PHYSICAL OXIDATION PROCESS FOR THE DEPOSITION OF A BIOCOMPATIBLE FILM	SO23 – Sidoli (T2) ACTIVATED CARBONS DERIVED FROM AGRIFOOD WASTE FOR HYDROGEN STORAGE
18,00-18,05	SO10 – De Leo (T5) POLYDOPAMINE COATING FOR LIPOSOMES: A POTENTIAL ALTERNATIVE TO PEGYLATION FOR APPLICATIONS IN BIOMEDICAL FIELD	SO24 – Murgia F. (T2) FAST MICROWAVE-ASSISTED SYNTHESES FOR OLD AND NEW POSITIVE ELECTRODES IN CONVENTIONAL AND SOLID-STATE BATTERIES
18,05-18,10	SO11 – Aliotta (T3) DEVELOPMENT OF SUSTAINABLE ANTIMICROBIAL FILMS TO EXTEND FRUIT AND VEGETABLE SHELF-LIFE	SO25 – Coppola (T1) DLP OF TEXTURED ALUMINA CERAMICS: POWDERS SYNTHESIS, 3D PRINTING AND MICROSTRUCTURAL CHARACTERIZATION
18,10-18,15	SO12 – Balestra(T3) CuMgAl LAYERED DOUBLE HYDROXIDE AS ELECTROCATALYSTS FOR ONE-POT REDUCTION OF CO_2 TOWARDS C2 PRODUCTS	SO26 - Gamba (T1) CORROSION RESISTANT PEO COATING ON ALUMINIUM 2024 WITH A BIOMIMETIC SURFACE FOR AERONAUTICAL APPLICATIONS
18,15-18,20	SO13 – Balsamo (T3) OPTIMIZATION OF PROCESS PARAMETERS FOR THE PRODUCTION OF POROUS SYSTEMS BY 3D PRINTING FOR CONTROLLED RELEASE	S027 – Cristoforetti (T1) THROUGH-MASK ELECTROCHEMICAL ETCHING ON AA2024 FOR FLUID-DRAG REDUCTION
18,20 – 18,25	SO14 – Barbi (T3) $FeSO_4$ AND $FeCl_2$ FUNCTIONALIZED BACTERIAL CELLULOSE THROUGH IN-SITU AND EX-SITU METHODS	
19,00 -20,30 Aperitivo **II Sessione Poster (Sala Terrazza)**		

MARTEDÌ 11 GIUGNO

Sessione Tematica 1 **Manifatturiero & Aerospazio**	
8,45-9,10	**KN4 – Fabio Ferracane**
9,10-9,22	O37 – Aronne SOL-GEL SYNTHESIS OF NANOSTRUCTURED MATERIALS FOR QUANTUM SOURCES
9,22-9,34	O38 – Ingrosso Ag NANOPARTICLES DECORATED REDUCED GRAPHENE OXIDE - SYNTHESIS AND EVALUATION OF LONG-TERM ANTIMICROBIAL ACTIVITY OF THE NOVEL HYBRID NANOCOMPOSITE AS A TEXTILE COATING
9,34-9,46	O39 – Bavasso PLASMA-ASSISTED GROWTH OF CARBON NANOTUBES ON CONTINUOUS FIBERS AS REINFORCING AGENTS IN MULTIFUNCTIONAL POLYMER COMPOSITES
9,46-9,58	O49 – Licheri FABRICATION OF HIGH ENTROPY DIBORIDE - SiC COMPOSITES THROUGH SELF PROPAGATING HIGH TEMPERATURE SYNTHESIS AND SPARK PLASMA SINTERING
9,58-10,10	O41 – Biesuz RAPID FIRING OF 3YSZ: ON THE HEATING RATE IMPACT ON SINTERIN, PROPERTIES AND MICROSTRUCTURE
10,10-10,22	O42 – Calisi LEAD HALIDE PEROVSKITES AS SENSITIVE MATERIALS FOR SOFT X-RAY RADIATION DETECTION IN SPACE ENVIRONMENTS
10,22-10,34	O43 – Casu M. PROCESSING AND CHARACTERIZATION OF DENSE $(Zr_{0.5}Ta_{0.5})B_2$ AND $(Zr_{0.5}Hf_{0.5})B_2$ ULTRA HIGH TEMPERATURE CERAMICS
10,34-10,46	O44 – Bemporad INTEGRATING HIGH-SPEED NANOINDENTATION AND MACHINE LEARNING: A NEW PARADIGM FOR ADVANCED STEEL DESIGN AND QUALITY ASSESSMENT
10,46– 11.15 Coffee break (sala Terrazza)	
Sessione Tematica 1 **Manifatturiero & Aerospazio**	
11,15-11,27	O45 – La Mantia MICROPLASTICS POLLUTION: MAIN SOURCES AND THE ROLE OF THE PLASTICS INDUSTRY
11,27-11,39	O46 – Frache DEVELOPMENT OF A PP-BASED MATERIAL WITH FLAME RETARDANT PROPERTIES FOR 3D PRINTING
11,39-11,51	O47 – Mariani STAMPA 3D DI MESCOLE ELASTOMERICHE FOTOCURABILI RINFORZATE CON SWCNT, MWCNT, CF E SILICE
11,51-12,03	O48 – Rossetti HARNESSING POLYETHYLENEIMINE IN 3D PRINTING FOR TUNABLE HETEROGENEOUS CATALYSTS
12,03-12,15	O49 – Sciancalepore POLYMER NANOCOMPOSITES AS INNOVATIVE ENCODING/DECODING MAGNETIC TAGS
12,15-12,30	050 - Valentini L. CONTROLLING THE CONFORMATION OF REDISSOLVED SILK FIBROIN FOR PRINTABLE MULTIFUNCTIONAL 3D MATERIALS
*13,00-14,30 Pausa **pranzo** (sala Terrazza)*	

Sessione Tematica 3 **Economia Verde e Circolare**	
14,30-14,42	O51 – Maio RAPID PREPARATION OF POLYMER-BASED HIERARCHICAL STRUCTURES
14,42-14,54	O52 – Manzoli PLAYING WITH THE SIZE OF GOLD TO DESIGN TAILORED CATALYSTS AND WIN THE MATCH OF METHYL-2-FUROATE SUSTAINABLE PRODUCTION
14,54-15,06	O53 – Rossi D. COMPOSITI PER APPLICAZIONI AUTOMBILISTICHE A BASE DI RETI DA PESCA RICICLATE E BIOCHAR
15,06-15,18	O54 – Olla A SYNERGIC COMPUTATIONAL AND EXPERIMENTAL APPROACH TO CORRELATE STRUCTURE AND PROPERTIES IN CARBON DOTS
15,18-15,30	O55 – Perotto VALORIZATION OF BIOMASS INTO HIGH VALUE PRODUCTS: OIL-BASED COATINGS AND THERMOSETS
15,30-15,42	O56 – Dominici EFFECT OF PHENOL-RICH EXTRACT FROM CHESNUT (CSW) WASTES ON THERMAL, MECHANICAL, ANTIOXIDANT AND ANTIMICROBIAL PROPERTIES OF POLYLACTIC ACID FILMS
15,42-15,54	O57 – Sambri 3D-PRINTING VIA VAT PHOTOPOLYMERIZATION: SUSTAINABLE BIOBASED RESINS CONTAINING LUMINESCENT ADDITIVES
15,54-16,06	O58 – Scarpelli ENHANCING NANOCELLULOSE-BASED MATERIAL PROPERTIES THROUGH INORGANIC COMPOUND ADDITION: A PATH TO ADVANCED PERFORMANCE
16,06-16,18	059 – Tabanelli ENHANCED REDUCTIVE CATALYTIC FRACTIONATION OF RAW POPLAR WOOD SAWDUST WITH A MAGNETIC RECYCLABLE CATALYST
16,45-17,15 Coffee break (sala Terrazza)	

Sessioni Trasversali - Parallele ***Sala Castello*** ***Chair: Andrea Caneschi***		***Sessioni Parallele*** ***Sala Villanova*** ***Chair: Maria Lucia Curri***
17,15-17,20	SO28 – Gallichi (T3) PREPARATION AND CHARACTERIZATION OF BIOPOLYMER-BASED COMPOSITES WITH NATURAL FILLERS	SO42 – Spennati (T2) (Cu, Ni) CATALYSTS FOR ETHANOL DEHYDROGENATION: EFFECT OF SUPPORT AND SYNTHETIC ROUTE
17,20-17,25	SO29 – Garofalo (T3) PROCESSABILITY AND FIL PROPERTIES OF POLY(BUTYLENESUCCINATE)/POLY(LACTIDE) BLENDS SUBJECTED TO REPEATED EXTRUSION CYCLES	SO43 – Valentini F. (T2) STABILIZATION OF PHASE CHANGE MATERIALS FOR THE THERMAL MANAGEMENT OF PHOTOVOLTAIC CELLS
17,25-17,30	SO30 – Montini (T3) SILICA FROM WASTE OF FLUORINE-DERIVATIVES INDUSTRY APPLIED FOR MICROSCAFS® SYNTHESIS	SO44 – Rusta (T2) CERIUM-OXIDE BASED CATALYSTS FOR DIRECT SYNTHESIS OF DIMETHYL CARBONATE FROM CO_2 AND METHANOL
17,30-17,35	SO31 – Gigante G. (T1) A NANOMECHANICAL APPROACH FOR EFFICIENT SUBSTITUTION OF COBALT IN HIGH-ENTROPY ALLOYS AND HARDMETALS FOR THERMAL SPRAYED COATINGS	SO45 – Sebastiani (T2) MICRON-SCALE FRACTURE TOUGHNESS OF 3D PRINTED ALD-COATED NANO-CERAMICS
17,35- 17.40	SO32 – Lerda (T1) ANALYSIS OF THE MICROSTRUCTURE AND DEFECTS IN INCONEL 738 SUPERALLOY MADE BY ELECTRON BEAM POWDER BED FUSION (EB-PBF)	SO46–- Mureddu(T3) TOWARDS THE USE OF CATALYSTS WITHOUT ACTIVATION STEP: A CU-CuO/ZnO/ZrO_2@SBA-15 NANOCATALYST FOR CO_2 TO GREEN METHANOL CONVERSION
17,40-17,45	SO33 – Martinuzzi (T1) DENSE EUTECTIC CERAMIC OXIDE BY ADDITIVE MANUFACTORING: SUSTAINABLE BY-DESIGN MATERIALS AND TECHNOLOGIES (ECOBAM PROJECT)	SO47 – Noè (T3) UV-CURABLE BOBASED ANTICORROSION COATINGS
17,45-17,50	SO34 – Muscas (T1) THE ROLE OF ANTISITE DEFECTS ON EXCHANGE BIAS IN DOUBLE PEROVSKITES	SO48 – Padovano (T1) PROCESSING OF PURE COPPER VIA LASER POWDER BED FUSION USING A GREEN LASER SOURCE

17,50-17,55	SO35 – Liboà (T5) SUSTAINABLE SERICIN COATED NANOLIPIDS, AS TUNABLE PLATFORM FOR DRUG DELIVERY IN FOOD	SO49 – Rigotti (T1) DESIGN OF ADVANCED SELF-HEALING MECHANISM IN FIBER REINFORCED COMPOSITE
17,55-18,00	SO36 – Milazzo (T5) ELECTROSPUN MULTI-LAYERED STRUCTURES WITH ANTIFOULING PROPERTIES INDUCED BY SURFACE MORPHOLOGY	SO50 – Rizzo (T1) NANOPOROUS CRYSTALLINE POLYMER MATERIALS FOR CONTROLLED RELEASE: STRUCTURAL FEATURES AND APPLICATIONS
18,00-18,05	SO37 – Olia (T5) CITRIC ACID DERIVED CARBON DOTS WITH ANTIOXIDANT ACTIVITY	SO51 – Ruggiu (T3) HIERARCHICAL ZEOLITES PREPARED VIA TEMPLATE-ASSISTED DESILICATION HYDROTHERMAL METHOD FOR CATALYSTS AND ELECTROCATALYSTS PRODUCTION
18,05-18,10	SO38 – Panebianco (T5) CYCLODEXTRIN NANOPARTICLES CONTAINING TERPYRIDINE MOIETIES: EXPLOITING METAL COORDINATION TO MODULATE ANTICANCER PROPERTIES	SO52 – Rossitti (T3) CLEAVABLE BIO-EPOXY RESIN PRODUCTION PROCESS, FIBER RECOVERY AND THERMOPLASTIC DERIVED MATERIAL CHARACTERIZATION
18,10-18,15	SO39 – Ricci V. (T2) HYDROGEN EVOLUTION REACTION (HER) PHOTOELECTROCATALYTIC ACTIVITY OF a-SnO2/$SnSe_2$ HETEROSTRUCTURES	SO53 – Soave (T3) CATALYTIC OXIDATIVE DEGRADATION OF HIGHLY HAZARDOUS CHEMICAL AND BIOLOGICAL CONTAMINANTS OVER SULFONIC ACID ION-EXCHANGE RESINS
18,15 - 18,20	SO40 - Secci (T2) MESOSTRUCUTRED ALUMINOSILICATES FOR DIMETHYL ETHER PRODUCTION FROM CO_2: ROLE OF THE NATURE, STRENGTH AND DENSITY OF THE ACID SITES	SO54 – Rossi E. (T1) MULTI-SCALE CHARACTERIZATION AND FABRICATION OF NANOCOMPOSITE CERAMICS WITH IMPROVED TOUGHNESS FOR BIOMEDICAL APPLICATIONS
18,20 – 18,25	SO41 – Signorile (T2) MIXED MATRIX MEMBRANES FOR CO2 TO HYDROCARBONS: THE SEPARATION STAGE IN THE DAM4CO2 PROJECT	SO55 – Yazdani (T1) FABBRICAZIONE E CARATTERIZZAZIONE ELETTROCHIMICA DI MATERIALI ELETTRODICI CO-FREE PER CELLE AD OSSIDI SOLIDI
20,00 Appuntamento alle 20:00 **Trasferimento al Ristorante 20,30 CENA SOCIALE**		

MERCOLEDÌ 12 GIUGNO	
Sessione Tematica 5 **Scienze della Vita e dell'alimentazione**	
8,45- 9,10	**KN5 – Niloofar Tahmasebi Birgani** FROM MICRO-ENGINEERED BIOMATERILAS TO MINI-BONES
9,10-9,22	O60 – Barbato ENHANCEMENT OF KRAFT PAPER PERFORMANCE WITH MODIFIED PVOH COATINGS FOR SUSTAINABLE FOOD PACKAGING
9,22-9,34	O61 – Biblioteca DIFFERENT CULTIVATION SYSTEMS FOR MORE ECO-SUSTAINABLE AND HEALTHY PRODUCTS: TRADITIONAL CULTIVATION VS HYDROPONIC SYSTEM FOR NICKEL-FREE TOMATO
9,34-9,46	O62 – Cabrini MONTMORILLONITE/ GRAPHENE OXIDE AND CHITOSAN-BASED THIN FILMS WITH HIGH OXYGEN BARRIER AT HIGH HUMIDITY
9,46-9,58	O63 – Cadeddu DESIGN OF DUAL-EMITTING NONAROMATIC FLUORESCENT POLYMERS THROUGH THERMAL TREATMENT OF L-GLUTAMIC ACID AND L-LYSINE
9,58-10,10	O64 – Danti ELECTROSPUN BACTERIAL CELLULOSE SCAFFOLDS COATED WITH ELECTROSPRAYED CHITIN NANOFIBRILS FOR EARDRUM REPAIR
10,10-10,22	O65 – Graziani NEW ANTIBACTERIAL DRESSINGS FOR THE TREATMENT OF SURGICAL AND NON-SURGICAL WOUNDS IN SPINE SURGERY
10,22-10,34	O66 – Lucignano HUMAN H-CHAIN FERRITIN: A MULTITASKING SYSTEM FOR THE DESIGN OF NANOSTRUCTURED BIOMATERIALS
10,34-10,46	O67 – Rizzi ADVANCED STIMULI RESPONSIVE NANOSTRUCTURES: MESOPOROUS SILICA CORE@SHELL ARCHITECTURES WITH DAHLIA-LIKE MORPHOLOGY AS INNOVATIVE SMART DRUG DELIVERY PLATFORMS TO FIGHT COLORECTAL CANCER
10,46- 11,30 Coffee break (sala Terrazza)	
Sessione Tematica 5 **Scienze della Vita e dell'alimentazione**	
11,15-11,27	O68 – Montalbano DESIGN OF SMART PLATFORMS FOR APPLICATIONS IN TISSUE REGENERATION AND BIOMARKER DETECTION
11,27-11,39	O69 – Milanese PREPARATION AND CHARACTERISATION OF FDM 3D-PRINTED BIOCOMPOSITE SCAFFOLDS FOR BIOMEDICAL APPLICATIONS
11,39-11,51	O70 – Simonetti 3D PRINTING OF LIQUID CRYSTAL ELASTOMERS AS ARTIFICIAL MUSCLES

POSTER SESSIONS

DOMENICA 9 GIUGNO 2024

P1	Arrigo Rossella	RECYCLED POLYPROPYLENE WITH ENHANCED PROCESSABILITY: EFFECT OF A REPAIRING ADDITIVE	T1
P2	Blondelli Francesca	INNOVATIVE POLYIMIDE-BASED MATERIALS WITH SELF-HEALING PROPERTIES FOR SPACE APPLICATIONS	T1
P3	Bocchi Pierluigi	RE.MO.PACK - STUDY AND DEVELOPMENT OF AN INNOVATIVE RECYCLABLE MONOMATERIAL FILM AND ITS INTRODUCTION INTO THE FOOD PACKAGING PROCESSES	T1
P4	Concas Giorgio	CHARGE ORDERING AND MAGNETIC TRANSITIONS IN NANOSTRUCTURED $Ho_{0.5}Ca_{0.5}MnO_3$ MANGANITE	T1
P5	Cosola Andrea	3D PRINTING OF MULTIFUNCTIONAL MAGNETO-BASED NANOCOMPOSITES	T1
P6	Cuccu Federico	EXPLORING THE MECHANOCHEMICAL BEHAVIOR OF METAL CATALYSTS IN ORGANIC REACTIONS	T1
P7	Delogu Francesco	DEVELOPING MECHANOCHEMICAL TECHNOLOGIES TO RENDER CROP-PROTECTION AGROCHEMICALS GREENER (DEMETRA)	T1
P8	Duranti Daniele	HIGH-SPEED NANOINDENTATION MAPPING: ENHANCING MEASUREMENT RELIABILITY ON HETEROGENEOUS SOFT MATRIX MATERIALS VIA AN INNOVATIVE PILE-UP ERROR CORRECTION PROTOCOL	T1
P9	Formisano Antonio	INCREMENTAL FORMING OF NATURAL FIBRE REINFORCED POLYPROPYLENE COMPOSITES	T1
P10	Improta Ilaria	DESIGN, DEPOSITION AND PERFORMANCE EVALUATION OF CONDUCTIVE INKS FOR WEARABLE ELECTRONICS	T1
P11	Miranda Riccardo	AN INNOVATIVE TWO-STEP ELECTROCHEMICAL PROCEDURE AIMED TO IMPROVE THE MECHANICAL PERFORMANCES AND THE CORROSION RESISTANCE OF FIBER METAL LAMINATES	T1
P12	Moeini Seyed Sepehr	PYROLYZED PMMA ON CARBON FIBER AS ELECTRODE FOR PIEZOELECTRIC ACOUSTIC SENSOR	T1
P13	Aghapour Ghourichay Sahar	FUNCTIONALIZED CARBON NANOTUBE/PHENYL DOPED G-C3N4 SYSTEM FOR EFFICIENT VISIBLE PHOTOCATALYTIC APPLICATIONS	T2
P14	Anwar Usama	BORON NANOPARTICLES AND ITS OPTOELECTRONIC PROPERTIES	T2
P15	Baggio Andrea	OPTIMIZATION OF DIRECT INK DEPOSITION PROCESS OF GLASS-CERAMIC SEALANT FOR A NEW GENERATION OF BATTERIES: A DoE APPROACH	T2
P16	Basso Maria	PULSED LASER-ANNEALED VO_2 THIN FILMS FOR H_2 SENSING APPLICATIONS	T2
P17	Baudino Luisa	TITANIUM DIOXIDE NANOTUBES: A VERSATILE MATERIAL FOR ENERGY STORAGE AND MATERIAL RECOVERY APPLICATIONS	T2
P18	Cappai Marta	PREPARATION OF NANOSTRUCTURED TIO_2 IN THE GREEN UP PROJECT	T2
P19	Casti Federico	TRANSPARENT WOOD AS A NEW BUILDING MATERIAL WITH PHOTO-SWITCHING PROPERTIES	T2
P20	Ceraulo Manuela	GEOPOLYMER COMPOSITES WITH CARBON FIBERS FOR APPLICATION IN ENERGY STORAGE SYSTEMS	T2
P21	Cocco Andrea	STUDY AND SYNTHESIS OF NEW COUMARINS WITH THERMALLY ACTIVATED DELAYED FLUORESCENCE (TADF) PROPERTIES FOR SENSING APPLICATIONS	T2
P22	Depalo Nicoletta	DECODING MOLECULAR ASPECTS OF THE GROWTH AND SURFACE FEATURES OF HIGHLY LUMINESCENT CsPbBr3 NANOPARTICLES FOR THEIR TECHNOLOGICAL APPLICATIONS	T2
P23	Fredi Giulia	MULTIFUNCTIONAL SANDWICH COMPOSITES CONTAINING PHASE CHANGE MATERIALS FOR SIMULTANEOUS STRUCTURAL AND THERMAL PERFORMANCE	T2
P24	Fuoco Alessio	INNOVATIVE MATERIALS FOR GAS SEPARATION MEMBRANES AND THEIR TRANSPORT PROPERTIES	T2
P25	Gabellini Lapo	METAL NITRIDES AND OXYNITRIDES AS CATALYSTS AND CATALYSTS SUPPORT FOR GREEN ENERGY CONVERSION	T2
P26	Gatti Teresa	SUSTAINABLE SOLAR CELLS BASED ON NON-TOXIC METAL HALIDE PEROVSKITES	T2
P27	Malara Angela	BLACK MASS FROM SPENT LITHIUM-ION BATTERIES AS A POTENTIAL ELECTRODE MATERIAL FOR CAPACITIVE DEIONIZATION OF WATER	T2
P28	Sidoli Michele	METAL/METAL OXIDE DECORATED GRAPHENE FOR WATER ELECTROLYSIS	T2
P29	Abbà Lorenza	DEVELOPMENT OF FLAME-RETARDANT POLYELECTROLYTE COMPLEX COMPOSITE WITH COLLAGEN-RICH SHAVINGS FROM TANNERY WASTES	T3
P30	Barbieri Francesco	DEVELOPMENT OF NEW BIO-COMPOSITE MATERIALS FOR POTENTIAL HOSPITAL WASTEWATER TREATMENT	T3
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