

17th International Conference on Nanomaterials - Research and Application (NANOCON 2025)

Brno, Czech Republic
15-17 October 2025

ISBN: 979-8-3313-3546-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by Tanger Ltd
All rights reserved.

Printed with permission by Curran Associates, Inc. (2026)

For permission requests, please contact Tanger Ltd
at the address below.

Tanger Ltd
Keltickova 62
710 00 Slezka Ostrava
Czech Republic

www.tanger.cz

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

SESSION A - NANOMATERIALS FOR ELECTRONIC, MAGNETIC AND OPTIC APPLICATIONS. CARBON NANOSTRUCTURES, QUANTUM DOTS

ACCEPTOR AND DONOR-DOPED CARBON NANOTUBES AS ELECTROCATALYSTS FOR ORR, HER AND OER.....	9
Paweł SZROEDER, Przemysław ZIÓŁKOWSKI, Ihor SAHALIANOV	
PLASMA-ASSISTED FABRICATION OF POROUS HETEROGENEOUS METAL/METAL OXIDE COATINGS	16
Max PAVLOVIĆ, Jan HANUŠ, Marek PROCHÁZKA, Ondřej KYLIÁN	
ELECTROCHEMICAL SYNTHESIS, CHARACTERIZATION AND APPLICATION OF MATRIXLESS METAL NANOPARTICLES.....	22
Monika ADAMOWSKA, Magdalena MUSZYŃSKA, Bartosz PAŁUBA, Wojciech HYK	
OPTIMIZATION OF NANOSTRUCTURED FREE-FORM OPTICAL FIBERS SUPPORTING THREE WEAKLY-COUPLED SPATIAL MODES USING DENSE AND CONVOLUTIONAL NEURAL NETWORKS.....	28
Bartosz PALUBA, Maciej NAPIORKOWSKI, Rafał KASZTELANIC, Ryszard BUCZYŃSKI	
UNDOPED DIAMOND FILMS FOR TRANSDUCER APPLICATIONS.....	34
Lidia MOSIŃSKA, Paweł POPIELARSKI, Robert SZCZĘŚNY, Agnieszka WIĘCKOWSKA, Michał KOĆ, Kateřina AUBRECHTOVÁ DRAGOUNOVÁ, Rajisa JACKIVOVÁ	
ADVANCING ELECTROSPUN POLYMER-GRAPHITE COMPOSITES: STRATEGIES FOR IMPROVED PERFORMANCE	40
Divan COETZEE, Juan Pablo PEREZ AGUILERA, Jakub WIENER, Luke WALKER, Thabang THEKISO, Cristina DE JONG	
STUDY OF THE STRUCTURE AND FABRICATION POSSIBILITY OF A NANOSHEET METAL–DIELECTRIC–SEMICONDUCTOR TRANSISTOR ON A GRAPHENE BASE.....	46
Ovsanna ZADOYAN, Gor VARDANYAN, Ashot KHACHATRIAN	
ACOUSTOFLUIDIC FOCUSING OF PS@Ag: TOWARDS CONTINUOUSLY REFRESHING SERS SUBSTRATE.....	54
Lucie BREZINOVA, Jakub NOVOTNY, Jan PRIKRYL, Anna TYCOVA	
SUPPRESSING NOISE IN QUANTUM COMPUTING OF ELECTRONIC STRUCTURE OF CRYSTALS	60
Jan HOJÁČ, Vojtěch VAŠINA, Martin FRIÁK	
Fe-DOPED HEXAGONAL BORON NITRID NANOTUBES: A FIRST-PRINCIPAL STUDY OF ELECTRONIC AND VIBRATIONAL PROPERTIES	66
Bouamra FAIZA	
EFFECT OF EXFOLIATION CONDITIONS ON THE PHOTOCATALYTIC PROPERTIES OF GRAPHITIC CARBON NITRIDE INVESTIGATED BY ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY	72
Ondřej MUŠÁLEK, Kryštof FONIOK, Vlastimil MATĚJKA	
STRUCTURAL AND MORPHOLOGICAL NATURE OF Ti-Si LAYERS	78
Petr VLCAK, Vidzaja KNP, Vojtech SMOLA, Jan DRAHOKOUPIL, Jan BARTONICEK	
INKJET-PRINTED MAGNETOELECTRIC NANOPARTICLES: DEPOSITION AND CHARACTERIZATION	82
Vojtěch POVOLNÝ, Alexandr LAPOSA, Jiří KROUTIL, Pavel HAZDRA, Pavel VEVERKA, Lenka KUBÍČKOVÁ, Ondřej KAMAN	

THERMALLY INDUCED TRANSFORMATION OF NICKEL-FULLERENE HYBRID ASSEMBLY.....	89
Jiří VACÍK, Giovanni CECCIO, Vasily LAVRENTIEV, Inna LAVRENTIEVA, Kazumasa TAKAHASHI	
SYNTHESIS OF POLY(GLYCIDYL METHACRYLATE) VIA MECHANO-ATRP USING BARIUM TITANATE AND ZINC OXIDE NANOPARTICLES AS ACTIVE AGENTS.....	94
Rostislav VLASÁK, Markéta ILČÍKOVÁ, Martin CVEK, Miroslav MRLÍK	
SESSION B - INDUSTRIAL AND ENVIRONMENTAL APPLICATIONS OF NANOMATERIALS	
EXPLORING PCM-FILLED CORE-SHEATH FIBERS FOR WINTER CLOTHING AND OPTIMIZING THEIR MASS PERCENTAGE FOR THERMAL REGULATION.....	101
Veerakumar ARUMUGAM, Anatoli KURKIN, Vitali LIPIK	
BARRIERS TO THE INDUSTRIAL APPLICATION OF NANOTECHNOLOGIES AT THE FIRM LEVEL	108
Jan MACHÁČEK, Jan ŽENKA, Jaeryoung SONG, Alina YOUNIS	
THERMAL AND RHEOLOGICAL CHARACTERISATION OF PLA COMPOSITES WITH LIGNOCELLULOSIC ADDITIVES.....	117
Mariia KOSTENKO, Lucie ZARYBNICKA, Yuriy STETSYSHYN, Milan KRACALIK	
THE EFFECT OF PCL/PLA BLEND NANOFIBERS WITH CLOTRIMAZOLE ON CANDIDA ALBICANS GROWTH	125
Karolína MORÁVKOVÁ, Misheel GANTSOGT, Michal ŘEZANKA, Miroslava RYSOVÁ	
DEVELOPMENT AND RESEARCH OF A NEW TECHNOLOGY FOR CORE- SHEATH NANOFIBER YARN PRODUCTION	131
Ondrej FRIEDRICH, Ondrej BATKA, Josef SKRIVANEK	
SUSTAINABLE FLEXIBLE FILMS BASED ON NATURAL POLYSACCHARIDES USABLE AS NANOMATERIAL SUPPORT.....	137
Jan BRAUN, Sabrin ABDALLAH, Ondřej HAVELKA, Michal SALAVA, Rafael TORRES-MENDIETA	
PPB-LEVEL AMMONIA SENSOR BASED ON TERNARY FLEXIBLE ZnO/PPy-Ag THIN FILM	143
Soumia BENHOUGHOU, Ahmed MEKKI, Khadidja SAKER	
ENHANCING MICROCRYSTALLINE-DIAMOND ADHESION ON CEMENTED CARBIDE CUTTING TOOLS USING A NANOCRYSTALLINE-DIAMOND BUFFER LAYER AND HIGH-TEMPERATURE INTERLAYERS	149
Ondrej SZABÓ, Kateřina AUBRECHTOVÁ DRAGOUNOVÁ, Rajisa JACKIVOVÁ, Štěpán POTOCKÝ, Mojmír JÍLEK, Alexander KROMKA	
TAILORED MICRO-MESOPOROUS FERRIERITE CATALYSTS FOR CO ₂ HYDROGENATION: INSIGHTS INTO STRUCTURAL MODIFICATION AND ACTIVITY	156
Nikola KOSTKOVÁ, Galina SÁDOVSKÁ, Radim PILAŘ, Eliška MIKYSKOVÁ, Darja SÁDOVSKÁ, Jaroslava MORÁVKOVÁ, Petr SAZAMA	
STRUCTURE AND MAGNETIC PROPERTIES OF FINE Fe ₃ Mn ₃ O ₈ FERRITE PARTICLES	163
Eva ŠVÁBENSKÁ, Pavla ROUPCOVÁ, Oldřich SCHNEEWEISS	
TESTING OF THE SELF-CLEANING PERFORMANCE OF THE SURFACES MODIFIED WITH G-C ₃ N ₄	169
Kryštof FONIOK, Facundo BARRAQUE, Petr DOSTÁL, Vlastimil MATĚJKA	
THERMAL STABILITY OF G-C ₃ N ₄ IN THE PRESENCE OF SELECTED OXIDES	175
Vlastimil MATĚJKA, Kristina SCHMIDTOVÁ, Kryštof FONIOK	
ADVANCING PEROVSKITE SOLAR CELL FABRICATION THROUGH LARGE-AREA ATMOSPHERIC PLASMA PROCESSING .	181
Tomáš HOMOLA, Aleš VLK, Jan POSPISIL, Martin LEDINSKY	

STUDY OF Li BEHAVIOUR IN ALL SOLID-STATE Li-S HALF CELL.....	187
Jiri VACIK, Giovanni CECCIO, Romana MIKSOVA	
STUDY OF LAGP COATING ON POLYETHYLENE SEPARATOR FOR POLYSULFIDE SUPPRESSION IN THIN LI-S BATTERIES	192
Giovanni CECCIO, Jiri VACIK	
SYNTHESIS AND MODIFICATION OF THIN NASICON SOLID ELECTROLYTES USING ION BEAMS	197
G. CECCIO, J. VACIK, I. MASTRONARDO, C. D'URSO, E. ŠTĚPANOVSKÁ, R. MIKŠOVÁ	
METHOD FOR COMPARING CATALYST REACTIVITY AND EFFICIENCY BY MEASURING CHANGES IN THE ILLUMINATION INTENSITY OF H ₂ BUBBLES DURING WATER ELECTROLYSIS.....	202
Jaroslav HÖLZEL, Karel KLOUDA, Jiří TILHON	
THE ROLE OF DISPERSANTS IN MODIFYING THE CARBON NANOTUBE ELECTRODES FOR THE OXYGEN REDUCTION REACTION	208
Przemysław ZIÓŁKOWSKI, Paweł SZROEDER, Piotr KAMEDULSKI, Piotr MADAJSKI	
ALTERING OF THE GROUND SILICON-BASED WASTE SURFACE PROPERTIES AND COMPOSITION FOR USE IN CEMENTITIOUS COMPOSITES AS SECONDARY RAW MATERIALS	214
Oleg BABČENKO, Klára BERANOVÁ, Zdeněk REMEŠ, Jitka LIBERTÍNOVÁ, Zdeněk PROŠEK, Pavel TESÁREK	
SOLVENT-FREE SHEAR MIXING VS. WET IMPREGNATION: EVALUATION OF CLASS I POLYAMINE-BASED SORBENTS FOR CO ₂ CAPTURE.....	221
Abdulkadir BOZARSLAN, Michal MACHOVSKY, Ivo KURITKA	
SMART MICROBOTS FOR CAPTURING AND DEGRADING CONTAMINANTS FROM WATER.....	227
Marie TOMANOVÁ, Karolína KUKRALOVÁ, Elena MILIUTINA, Vasilii BURTSEV, Václav SVORCIK, Oleksiy LYUTAKOV	
SESSION C - BIONANOTECHNOLOGY, NANOMATERIALS IN MEDICINE	
PHYSICAL PRINCIPLES OF CROSSLINKING OF WATER-SOLUBLE POLYMERS FOR TISSUE ENGINEERING	233
Kateřina STRNADOVÁ, Maxim LISNENKO, Ashot AGAZARIAN, David CHVÁTIL, Štěpán MATĚJŮ, Jaroslav MIKULE, Věra JENČOVÁ	
DETERMINATION OF CRYSTALLINE, RIGID AMORPHOUS, AND MOBILE AMORPHOUS FRACTIONS IN ELECTROSPUN POLY(E-CAPROLACTONE) NANOFIBERS USING MODULATED DIFFERENTIAL SCANNING CALORIMETRY.....	241
László MÉSZÁROS, David LUKÁŠ, Roland PETRÉNY, Anna HLADÍKOVÁ, Kateřina BAADEROVÁ, Nina MAROUSKOVÁ, Balázs Gábor PINKE, Ema CHUDOBOVÁ, Jaroslav MIKULE, Eva KUŽELOVÁ KOŠŤÁKOVÁ	
DIFFERENTIAL RESPONSE OF <i>HAEMATOCOCCUS PLUVIALIS</i> TO SILVER NANOPARTICLES: ROLE OF INOCULUM TYPE IN ASTAXANTHIN ACCUMULATION	248
Liliana CEPOI, Ludmila RUDI, Tatiana CHIRIAC, Vera MISCU, Ecaterina PLINGAU	
QUANTITATIVE BIODISTRIBUTION IMAGING OF GD-LABELED NANOPARTICLES WITH PRECLINICAL MRI	254
Jiří VITOUŠ, Ondřej MACÍČEK, Eva DRAŽANOVÁ, Lucie KRÁTKÁ, Michaela VOJNÍKOVÁ, Ladislav SIVÁK, Andrew D. MILLER, Zbyněk HEGER, Radovan JIŘÍK	

BIODEGRADABLE AC ELECTROSPUN NANOFIBROUS YARNS: TECHNOLOGY, MODIFICATIONS, POSTPROCESS TREATMENT AND PROPERTIES FOR SURGICAL SUTURES	258
Jaroslav MIKULE, Ema CHUDOBVÁ, Jan VALTERA, Pavel KEJZLAR, Ondřej FRIEDRICH, Jaroslav BERAN, David LUKÁŠ, Eva KUŽELOVÁ KOŠŤÁKOVÁ	
METAL ION- PHOSPHATATE COMPLEXES: APPLICATIONS IN NANOMEDICINE AND CLINICAL IMPLICATIONS	264
Julia WERLE, Matej FUSEK, Martina STANKOVA, Bozena HOSNEDLOVA, Hoai Viet NGUYEN, Eva KLAPKOVA, Ondrej MITROVSKY, Egon WERLE, Richard PRUSA, Karel KOTASKA, Rene KIZEK	
SILICA NANOFIBERS WITH COMBINED BIOACTIVITY BASED ON GENTAMICIN SULPHATE WITH NATURAL BIOMOLECULES.....	271
Hana TOMÁNKOVÁ, Misheel GANTSOGT, Miroslav ČERNÍK, Miroslava RYSOVÁ	
HYBRID ELECTROSPINNING APPROACHES FOR TUBULAR NANOFIBER SCAFFOLD FABRICATION	277
Josef BULIR, Ondrej BATKA	
EQUIPMENT FOR PRODUCING MULTILAYER NANOFIBROUS STRUCTURES	283
Ondrej BATKA, Jan MILUCKY, Ondrej FRIEDRICH, Petr PLASIL	
SOLUTION BLOW SPINNING OF POLYMERIC SOLUTIONS CONTAINING BENIGN SOLVENTS.....	289
Ema CHUDOBVÁ, Eva KUŽELOVÁ KOŠŤÁKOVÁ	
THE EFFECT OF SILVER NANOPARTICLE IMPREGNATED WOUND DRESSINGS IN DIALYSIS CATHETER CARE: A SYSTEMATIC REVIEW	295
Hatice CEYLAN	
SESSION D - MONITORING AND TOXICITY OF NANOMATERIALS	
THE EFFECT OF ZnO NANOPARTICLE MORPHOLOGY ON BIOMASS AND PHYCOCYANIN CONTENT IN THE CYANOBACTERIUM <i>ARTHROSPIRA PLATENSIS</i>	303
Tudor BRANIȘTE, Ludmila RUDI, Tatiana CHIRIAC, Liliana CEPOI	
COMPARATIVE EFFECTS OF Cu, CuO, ZnO, AND TiO ₂ NANOPARTICLES ON THE ANTIOXIDANT ACTIVITY OF <i>ARTHROSPIRA PLATENSIS</i> EXTRACTS	309
Liliana CEPOI, Svetlana CODREANU, Ion ROTARI, Valentina TASCA, Ion TASCA, Ludmila RUDI, Valeriu RUDIC	
BIOCOMPATIBILITY ASSESSMENT OF PHOTOCATALYTIC NANOPARTICLE-FUNCTIONALIZED POLYACRYLONITRILE NANOFIBERS FOR PROTECTIVE TEXTILES.....	315
Táňa ZÁVODNÁ, Radmila ŽIŽKOVÁ, Michala KLUSÁČEK RAMPICHOVÁ, Viktorie ROČKOVÁ, Baturalp YALCINKAYA, Viraj Pratap NIRWAN, Amir FAHMI, Matej BUZGO, Eva FILOVÁ	
DIFFUSION OF DICLOFENAC IN REACTIVE HUMIC HYDROGEL.....	321
Martina KLUČÁKOVÁ, Petra ZÁVODSKÁ	
SESSION E - ADVANCED METHODS OF PREPARATION AND CHARACTERIZATION OF NANOMATERIALS	
PREPARATION STRATEGIES AND MULTIFUNCTIONAL APPLICATIONS OF CELLULOSE-BASED AEROGELS IN ENERGY AND ENVIRONMENTAL FIELDS	328
Yasemin OZLIMAN, Melih Soner CELIKTAS	

MORPHOLOGICAL CONTROL OF LAYERED MoS ₂ VIA TWO-ZONE CHEMICAL VAPOR DEPOSITION: A STUDY ON GROWTH PARAMETERS	335
Akanksha AGARWAL, Dhananjay K. SHARMA, Kateřina Aubrechtová DRAGONOVÁ, Rajarshi ROY, Štěpán POTOCKÝ, Alexander KROMKA	
EXPLORING SPIN DISORDER IN FERRIMAGNETIC IRON OXIDES USING STANDARD DFT AND ADVANCED COMPUTATIONAL METHODS	342
Valentína BERECOVÁ, Martin FRIÁK, Naděžda PIZÚROVÁ, Jana PAVLŮ	
MODERN APPROACH TO STUDY SUSPENSIONS FOR THE CREATION OF POROUS ZIRCONIA NANOCERAMICS	349
Patrik SOKOLA, Petr PTÁČEK, David KOTALA, Jan BLAHUT, Matěj BŘEZINA, Arijeta BAFTI, Vilko MANDIĆ	
STRUCTURAL AND ELECTRONIC PROPERTIES OF CsPbBr ₃ PEROVSKITE NANOCRYSTAL ON ZnO (1010) NON-POLAR SURFACE	355
Ghulam ABBAS, Krzysztof PYRCHLA, Naser HAKIMI RAAD, Egor UKRAINTSEV, Bohuslav REZEK	
ORDERED GAN AND INGAN NANOSTRUCTURES FABRICATED USING NANOSPHERE LITHOGRAPHY TECHNIQUES	362
Michal PALIČ, Halyna KOZAK, Tomáš HUBÁČEK, Jan BATYSTA, František HÁJEK, Alice HOSPODKOVÁ, Pavel HUBÍK, Filip DOMINEC, Vlastimil JURKA	
RUTHERFORD BACKSCATTERING FOR EVALUATION OF POROSITY DISTRIBUTION IN THIN BLACK SILVER FILM	368
Vladimir HAVRÁNEK, Jan KEJZLAR, Jiří VACÍK, Giovanni CECCIO, Romana MIKŠOVÁ, Dietmar FINK, Martin VRŇATA	
DIRECT AMINO-TERMINATION OF NANODIAMONDS AND INVESTIGATION OF THEIR OPTICAL PROPERTIES UPON ANNEALING	373
Szabolcs CZENE, Olga KRAFCSIK, Nikoletta JEGENYES, Gábor BORTEL, Ádám GALI	
AC SPINNING ELECTRODE FOR CONTINUOUS COLLECTORLESS PRODUCTION OF LINEAR NANOFIBER SLIVER	380
Ondrej FRIEDRICH, Jaroslav MIKULE, Jan VALTERA	
UNVEILING THE CONSEQUENCES OF COMPLETE SUBSTITUTION OF Sn ATOMS FOR Ni ATOMS IN LaNi ₅ : A DFT PERSPECTIVE	386
Anna HUŇAŘOVÁ, Valentína BERECOVÁ, Ondřej ZOBAČ, Martin FRIÁK, Andy WATSON, David HOLEC, Jana PAVLŮ	
CHARACTERIZATION OF Ti ₃ AlC ₂ SYNTHESIZED BY USING A COST-EFFECTIVE APPROACH	392
Facundo BARRAQUE, Kryštof FONIOK, Taťána BARVÍKOVÁ, M. Luciana MONTES, Marcela A. TAYLOR, Radim ŠKUTA, Vlastimil MATĚJKA	
SERS-ACTIVE NON-PLASMONIC SUBSTRATES BASED ON CONDUCTING POLYMERS	399
Ondřej KYLIÁN, Pavol PIVKO, Jan PROKEŠ, Jan HANUŠ, Eva KOČIŠOVÁ, Marek PROCHÁZKA	