

**21st NATIONAL SYMPOSIUM
POLYMERS 2025
WITH INTERNATIONAL PARTICIPATION**

PROGRAMME



**June 29 to July 02, 2025
Kings' Valley Medical & Spa Hotel,
Kazanlak, Bulgaria**

SUNDAY, 29 June 2025	
14:00 – 16:00	REGISTRATION
16:00 – 16:10	OPENING REMARKS
SESSION 1: Synthesis of Polymers & Macromolecular Engineering Chair: Petar Petrov	
16:10 – 16:55	PL-1: NICOLAY TSAREVSKY Functional branched polymers: Synthetic methodologies and applications
16:55 – 17:30	KL-1: IVAYLO DIMITROV Functional polycarbonate-based polymer architectures for biomedical applications
17:30 – 17:55	OC-1: Aleksey VASILEV "Light-on" polymeric dyes for nucleic acids visualization
17:55 – 18:20	OC-2: Pawel MISIAK Fluorescently labeled cholesterol-based block copolymers as smart drug delivery systems
18:20 – 18:45	OC-3: Ildoo CHUNG Biodegradable and thermoresponsive hollow porous micro/nanoparticles for sustained drug release
19:30	DINNER

PL: Plenary Lecture (40 min + 5 min discussion)

KL: Keynote Lecture (30 min + 5 min discussion)

OC: Oral Communication (20 min + 5 min discussion)

MONDAY, 30 June 2025	
08:00 – 09:00	REGISTRATION
SESSION 2: Synthesis of Polymers & Macromolecular Engineering Chair: Nick Tsarevsky	
09:00 – 09:45	PL-2: KRZYSZTOF MATYJASZEWSKI Functional materials by macromolecular engineering using Atom Transfer Radical Polymerization (ATRP)
09:45 – 10:20	KL-2: NICOLAS SANSÓN Supramolecular microgels and hydrogels: From design to stimuli-responsive behavior and applications
10:20 – 10:40	NETWORKING AND COFFEE BREAK

SESSION 3: Biomaterials & Nanomedicine Chair: Christo Novakov	
10:40 – 11:05	OC-4: Stanislav RANGELOV Vesicular spherical nucleic acids
11:05 – 11:30	OC-5: Mustafa KOTMAKÇI Synthetic non-viral carriers based on poly(L-lysine) for pDNA delivery: Characterization, activity and preliminary pharmaceutical formulation studies
11:30 – 11:55	OC-6: Havazelet BIANCO-PELED Flow properties and controlled dissolution of physically cross-linked polysaccharides hydrogels
12:00 – 13:30	LUNCH
SESSION 4: Biomaterials & Nanomedicine Chair: Christo Novakov	
13:30 – 14:15	PL-3: RICHARD HOOGENBOOM A tale of poly(2-oxazoline)s, poly(2-oxazine)s and gene delivery
14:15 – 14:50	KL-3: KENSUKE OSADA Virus-like polymer nanostructures for pancreatic cancer gene therapy
14:50 – 15:10	NETWORKING AND COFFEE BREAK
SESSION 5: Hybrids & Nanocomposites Chair: Natalia Toncheva-Moncheva	
15:10 – 15:35	OC-7: Aleksander FORYS Amphiphilic PEG-containing copolymers as stabilizers of glyceryl monooleate based nanoparticles
15:35 – 16:00	OC-8: Łukasz OTULAKOWSKI Green microwave-assisted method for producing thermoresponsive polymer materials
16:00 – 16:25	OC-9: Dawid SZYMCZUK Magnetic polymer-inorganic hybrids with dual biofunctionalization for colon cancer combined therapy
16:25 – 16:50	OC-10: Viktoriia TALANIUK Triboelectric nanogenerator based on carbon nanotubes-modified polymer composite for low-power electronics
16:55 – 17:00	GROUP PHOTO
17:30 – 19:00	POSTER SESSION 1
19:30	GALA DINNER

TUESDAY, 01 July 2025	
SESSION 6: Biomaterials & Nanomedicine Chair: Olya Stoilova	
09:00 – 09:45	PL-4: RUI L. REIS Novel cell/polymeric biomaterials interactions platforms for the elaboration of innovative high-throughput systems and complex 3D <i>in vitro</i> disease models
09:45 – 10:20	KL-4: IVA PASHKULEVA Supramolecular polymers from carbohydrate amphiphiles: Stereochemical effects
10:20 – 10:40	NETWORKING AND COFFEE BREAK
SESSION 7: Hybrids & Nanocomposites Chair: Sevdalina Turmanova	
10:40 – 11:15	KL-5: ALBENA LEDERER Advancement of separation approaches for complex architectures – from single chain nanoparticles to multichain assemblies
11:15 – 11:40	OC-11: Olya STOILOVA Development of bioactive polymer formulations for next-generation plant protection
11:40 – 12:05	OC-12: Mariya SPASOVA Innovative biomaterials loaded with biocontrol agents for sustainable agriculture
12:15 – 13:30	LUNCH
SESSION 8: Hybrids & Nanocomposites Chair: Stanislav Rangelov	
13:30 – 14:05	KL-6: NOBUYOSHI MIYAMOTO Nanocomposite polymers with columnar nanofibers consisting of monodisperse inorganic nanosheets
14:05 – 14:30	OC-13: Milena IGNATOVA Novel electrospun polymeric fibrous materials containing bioactive natural acids: Preparation, characterization, and antioxidant and antimicrobial activity
14:45 – 17:45	SOCIAL PROGRAM
18:00 – 19:30	POSTER SESSION 2
19:30	DINNER

PL: Plenary Lecture (40 min + 5 min discussion)

KL: Keynote Lecture (30 min + 5 min discussion)

OC: Oral Communication (20 min + 5 min discussion)

WEDNESDAY, 02 July 2025

SESSION 9: Polymer materials

Chair: Elena Vasileva

09:00 – 09:45	PL-5: YOSHIHITO OSADA Future subjects of gel science - inspired from biology
09:45 – 10:20	KL-7: AKIRA KAKUGO Mechanical deformation of microtubules as rails for transport and its impact on cargo dynamics
10:20 – 10:45	OC-14: Charlie MASLEN Cryogenic milling of consumer plastics for high-throughput characterization of polydisperse, amorphous microplastics
10:45 – 11:10	OC-15: Darinka CHRISTOVA Surface modification strategies in developing polyethersulfon nanofiltration membranes with improved water-ethanol separation
11:10 – 11:35	OC-16: Hristo PENCHEV Tailored membrane and hybrid dispersion materials based on polybenzimidazoles and (nano)cellulose for green energy conversion and environmental applications
11:35 – 11:45	AWARDS and CLOSING REMARKS
12:00 – 13:30	LUNCH
14:00	DEPARTURE

PL: Plenary Lecture (40 min + 5 min discussion)

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POSTER SESSION 1

MONDAY, 30 JUNE 2025
17:30 – 19:00

P-1	Nevena PETKOVA-YANKOVA EXPLORING BISCOUMARIN MONOMERS: THEIR SYNTHESIS AND CHARACTERIZATION
P-2	Anna CELNY MICROSTRUCTURE-DEPENDENT AGGREGATION OF CHELATE-FUNCTIONALIZED POLY(2-OXAZOLINE)S
P-3	Anna CELNY ANTIFOULING SURFACES WITH STAR POEGMA NANOLAYERS
P-4	Boyko VASILEV SYNTHESIS AND UNEXPECTED PHOTOPHYSICAL PROPERTIES OF NOVEL POLY(VINYL ACETAL)S
P-5	Emi HALADJOVA DOUBLE HYDROPHILIC METHACRYLATE BASED COPOLYMERS AS NON-VIRAL VECTORS FOR GENE DELIVERY
P-6	Emi HALADJOVA DESIGN OF AMINO-FUNCTIONALIZED POLY(2-ETHYL-2-OXAZOLINE)-POLY[2-(3-BUTENYL)-2-OXAZOLINE] COPOLYMERS FOR NUCLEIC ACID DELIVERY
P-7	Marin SIMEONOV COPOLYMERS OF SULFOBETAINE METHACRYLATE (SB) AND HYDROXYETHYL METHACRYLATE (HEMA): SYNTHESIS AND CHARACTERISATION
P-8	Natalia TONCHEVA-MONCHEVA DESIGN AND SYNTHESIS OF AMPHIPHILIC POLYMERS WITH COMB-LIKE AND COIL-COMB ARCHITECTURES BEARING POLYGLYCIDOL SIDE CHAINS
P-9	Rayna BRYASKOVA NOVEL BENZIMIDAZOLE BASED MICELLES AS PROMISING ANTICANCER DRUG DELIVERY SYSTEMS
P-10	Niya DELCHEVA POLYMER-BASED CARRIERS FOR CONTROLLED RELEASE BASED ON COPOLYMERS OF POLY(ϵ -CAPROLACTONE) AND POLYGLYCIDOL: SYNTHESIS AND BIOLOGICAL EVALUATION
P-11	Savina KOLEVA COPOLYMERS OF SULFOBETAINE METHACRYLATE AND N,N'-DIMETHYLACRYLAMIDE AS SMART DELIVERY SYSTEMS FOR RUTIN HYDRATE
P-12	Sibela DOLEVA DESIGN, SYNTHESIS, AND CHARACTERIZATION OF AMPHIPHILIC BLOCK COPOLYMERS BASED ON POLYGLYCIDOL, POLY(ALLYL GLYCIDYL ETHER), AND POLY(ϵ -CAPROLACTONE) FOR CONTROLLED DRUG DELIVERY

POSTER SESSION 1

MONDAY, 30 JUNE 2025
17:30 – 19:00

P-13	Katarzyna FILIPEK CHELATE-FUNCTIONALIZED POLY(2-OXAZOLINE) FOR THE DESTRUCTION OF BACTERIAL CELL MEMBRANES
P-14	Yavor HRISTOV SYNTHESIS OF NOVEL METHACRYLATE-BASED CYCLIC BRUSH POLYMERS – INNOVATIVE PLATFORMS FOR THE CONTROLLED DELIVERY OF PHARMACEUTICALS AND NUCLEIC ACIDS
P-15	Krum ALEKSANDROV SYNTHESIS OF CYCLIC-BRUSH POLYESTER ARCHITECTURES FOR DRUG AND POLYNUCLEOTIDE TRANSPORT
P-16	Natalia OLESZKO-TORBUS (CO)POLY(2-OXAZOLINE) CONJUGATES WITH ACYCLIC AND MACROCYCLIC POLYAMINO POLYCARBOXYLIC CHELATORS - DESIGNING ANTIBACTERIAL POLYMERIC SYSTEM
P-17	Radostina KALINOVA POLY(2-(DIMETHYLAMINO)ETHYL METHACRYLATE)-GRAFTED AMPHIPHILIC BLOCK COPOLYMER MICELLES CO-LOADED WITH QUERCETIN AND DNA
P-18	Bartosz MALISZEWSKI PHYSICOCHEMICAL CHARACTERIZATION OF FLUORESCENT CHOLESTEROL-BASED POLYMERS FOR BIOMEDICAL APPLICATIONS
P-19	Anna PRANCHEVA PREPARATION OF STYRYL DYES-LOADED POLY(VINYL ACETAL)S NANOPARTICLES FOR NUCLEIC ACIDS VISUALIZATION
P-20	Ina ANASTASOVA HYBRID ELECTROSPUN POLY(L-LACTIDE-CO-D,L-LACTIDE) MATERIALS WITH ANTIOXIDANT AND PHOTOCATALYTIC PROPERTIES
P-21	Meglena KANDINSKA CATIONIC 4-SUBSTITUTED BENZALDEHYDES AS INTERMEDIATES FOR BIOCOMPATIBLE PVA POLYMERS
P-22	Nikoleta STOYANOVA CHITOSAN GEL BEADS AS CARRIERS FOR <i>BACILLUS SUBTILIS</i> : A STRATEGY FOR SUSTAINED CROP PROTECTION
P-23	Katarzyna FILIPEK THERMORESPONSIVE AND BIODEGRADABLE POEGMA-BASED NANOGELS FOR BIOMEDICAL APPLICATIONS

POSTER SESSION 1

MONDAY, 30 JUNE 2025
17:30 – 19:00

P-24	Petya TSEKOVA SUSTAINABLE ENCAPSULATION OF BIOCONTROL YEASTS IN COATED ELECTROSPUN FIBROUS MATERIALS
P-25	Theodore SENTOUKAS DEVELOPMENT OF GREEN BIODEGRADABLE POLYSACCHARIDE-SUPER HYDROPHILIC POLYMER GRAFTS AS ANTIFOULING COATINGS
P-26	Rumena STANCHEVA ANTI-BIOFILM AGENTS BASED ON CATIONIC POLYMER MICELLES LOADED WITH <i>INULA HELENIUM</i> L. ROOT EXTRACT
P-27	Vladimir KRASTEV CHITOSAN-COATED ELECTROSPUN POLY(3-HYDROXYBUTYRATE) BIOHYBRID MATERIALS FOR SUPPORTING GROWTH AND LONG-TERM STORAGE OF <i>BACILLUS SUBTILIS</i>
P-28	Daria LIPOWSKA-KUR NEW THERMORESPONSIVE BIOFILAMENTS BASED ON FUNCTIONAL POLYMETHACRYLATES
P-29	Nasko NACHEV FUNCTIONALIZATION OF FIBROUS BIOMATERIALS WITH <i>BACILLUS SUBTILIS</i> USING ELECTROSPINNING AND ELECTROSPRAYING
P-30	Milena IGNATOVA CHITOSAN/HYALURONATE COMPLEX-COATED POLY(3-HYDROXYBUTYRATE) FIBROUS MATERIALS CONTAINING PLANT EXTRACTS AND THEIR ANTIOXIDANT AND ANTIBACTERIAL ACTIVITY
P-31	Katya KAMENOVA PREPARATION AND CHARACTERIZATION OF HYALURONIC ACIDCOATED COMPLEXES OF CATIONIC POLYMERIC MICELLES AND SERRATIOPEPTIDASE

POSTER SESSION 2

TUESDAY, 01 JULY 2025

18:00 – 19:30

P-1	Tsvetomila LAZAROVA-KYULEVA HIGH-ENTROPY SPINEL OXIDES (CoMnFeNiX ₃)O ₄ , WHERE X=Cr, Zn, Al FOR METHANOL DECOMPOSITION
P-2	Violeta MITOVA DESIGN OF 3D PRINTED BIOWASTE-DERIVED POROUS SILICA AS CATALYSTS FOR CO ₂ HYDROGENATION
P-3	Dessislava KOSTADINOVA PREPARATION OF SUPPORTLESS FILMS FROM PAZO POLYMER FOR OPTICAL APPLICATIONS
P-4	Christo NOVAKOV MALDI-TOF MASS SPECTROMETRY OF LOW MOLECULAR WEIGHT ORGANIC COMPOUNDS AND OLIGOMERS - ARE A MATRIX AND CATIONIZING AGENT ALWAYS NEEDED?
P-5	Maya STANEVA STRUCTURE INVESTIGATION OF PHB/ MMT NANOCOMPOSITE FILMS
P-6	Georgy GRANCHAROV FLEXIBLE POLYMER–ORGANIC SOLAR CELLS BASED ON P3HT: PC61BM BULK HETEROJUNCTION ACTIVE LAYER FABRICATED OVER PLASTIC SUBSTRATES
P-7	Filip UBLEKOV NOVEL PERNIGRANILINE SILICA NANOSHEETS HYBRID DISPERSIONS
P-8	Antonia STOYANOVA THE ROLE OF POLYMER MEMBRANES IN SOLID-STATE SUPERCAPACITORS
P-9	Boryana KARAMANOVA ELECTROSPUN POLYMER NANOFIBRES AS SEPARATOR FOR SUPERCAPACITOR APPLICATIONS
P-10	Svetlana VELEVA PHYSICOCHEMICAL CHARACTERIZATION OF SELF-CHARGING POLYMER NANOFIBERS FOR ENERGY STORAGE SYSTEMS APPLICATIONS
P-11	Georgy GRANCHAROV SOLAR CELLS BASED ON PTB7-FX COPOLYMERS, PC71BM ACCEPTOR, AND TWO TYPES OF SOLVENT ADDITIVES
P-12	Hristo PENCHEV SUPERCAPACITOR CELL PERFORMANCE OF ALKALI- DOPED BACTERIAL NANOCELLULOSE AND PFSA/CLAY HYBRID MEMBRANES

POSTER SESSION 2

TUESDAY, 01 JULY 2025

18:00 – 19:30

P-13	Silvia DIMOVA CARBOXYLATED POLYANILINE/CARBON NANOTUBES HYBRID DISPERSIONS AND CELLULOSE IMPREGNATED SUBSTRATES THEREFROM
P-14	Silvia BOZHILOVA DOUBLE HYDROPHILIC COPOLYMER BRUSHES DESIGNED FOR OPTICAL HUMIDITY SENSING APPLICATION
P-15	Darinka CHRISTOVA APPLICATION OF A TEMPERATURE-SENSITIVE POLYMER MEMBRANE FOR ULTRAFILTRATION TREATMENT OF AGRO-PROCESSING WASTEWATER
P-16	Desislava BUDUROVA NANOCOMPOSITE PERFLUOROSULFONIC ACID/PROTONATED MONTMORILLONITE MEMBRANES FOR LOW TEMPERATURE FUEL CELLS
P-17	Denitsa NIKOLOVA SEMI-INTERPENETRATING POLYMER NETWORKS OF POLY(ETHYLENE GLYCOL) - HEPARIN NETWORKS AND LINEAR POLY(CARBOXYBETAINE METHACRYLATE) AS STIMULI RESPONSIVE MATERIALS
P-18	Yancho HRISTOV CHITOSAN FROM BLACK SEA SHRIMP SHELLS AS A CARBON MATERIALS PRECURSOR
P-19	Emilia IVANOVA OPPORTUNITIES FOR EXTRACTING MICROPLASTICS FROM BIOTA IN BURGAS BAY
P-20	Ganka KOLCHAKOVA BIOPOLYMER FILMS BASED ON GELATIN: EFFECT OF PLASTICIZER CONTENT AND REINFORCEMENT WITH CALCIUM CARBONATE NANOPARTICLES
P-21	Elena MOLLOVA MICROPOLYMER CONTAMINANTS IN SEDIMENTS AND BIOTA FROM THE BLACK SEA MARINE ECOSYSTEM
P-22	Hristiana TURMANOVA A COMPARATIVE INVESTIGATION OF THE ADHESIVE BOND STRENGTH BETWEEN DENTIN AND CROWNTEC
P-23	Hristiana TURMANOVA A COMPARATIVE ANALYSIS OF THE WEAR RESISTANCE OF CROWNTEC BASED ON VARYING PRINTING ANGLES
P-24	Hristiana TURMANOVA STUDY OF MICROPLASTIC CONTENT IN BIOLOGICAL FLUID (SALIVA) OF PATIENTS WITH COMPLETE DENTURES

POSTER SESSION 2

TUESDAY, 01 JULY 2025

18:00 – 19:30

P-25	Maria KATZAROVA SELF-CONSISTENCY AND SPEED UP OF CONSTRAINT RELEASE DYNAMICS FOR STAR-BRANCHED POLYMERS
P-26	Wanda SIKORSKA COMPOSTABLE POLYMERS AS ECO-FRIENDLY ALTERNATIVE IN WASTE MANAGEMENT
P-27	Pencho TULESHKOV QUANTITATIVE METHOD FOR DETECTION OF FORMIC ACID IN BEE HIVE AIR SAMPLES
P-28	Radka RADEVA ANALYTICAL ULTRACENTRIFUGATION AS A TOOL FOR CHARACTERIZATION OF POLYMER BASED GENE DELIVERY SYSTEMS
P-29	Atanas GARBEV UTILIZATION OF FLOTATION WASTE WATER FOR METAL-XANTHATE GEL SYNTHESIS AND ITS ROLE IN POLYANILINE-BASED SUPERCAPACITOR ELECTRODE FABRICATION
P-30	Elitsa PETKUCHEVA PtOx-PANI ELECTRODES FOR SUSTAINABLE HYDROGEN PRODUCTION