COPM 2026 conference program - April 29th, 2026

Plenary session (1A)

Chairman: prof. dr hab. Marek Łos

13:00 – 13:15 **Opening session: prof. dr hab. inż. Joanna Polańska**

13:15 – 14:00 **Prof. Paweł Łabaj (Małopolska Centre of Biotechnology, Jagiellonian University)**
Genomic reproducibility in the bioinformatics era

Parallel session (2A)

Chairman: dr hab. inż. Michał Marczyk

14:00 **Liu J**, Beule D, Blanc E: Relevance based supervised detection of clinically actionable variants

14:10 **Fochtman D,** Marczak Ł, Pietrowska M, Polańska J, Wojakowska A: Label-free prmPASEF proteomics data analysis workflow selection - benchmarking AI-based and data-driven approaches

14:20 **Kaźmierczak M**, Skalska M, Kalafova A, Jaszcza K, Wojtysiak D, Capcarova M: Impact of optimized ToF-SIMS data preprocessing and normalization strategies on the metabolic profiling of diabetic rat liver

14:30 **Limanówka P**, Sędek Ł: Integrated CITE-seq analysis links leukemic differentiation to lymphoid microenvironmental signalling network

14:40 **Moio N**, Fantini S, Bisceglia G, Żyła J, Markiel M, Vattemi G, D'Antona G, Polańska J, Tupler R: Longitudinal multi-omics analysis of FRG1-mice identifies Cdkn1a as a therapeutic target for FSHD

14:50 **Natraj Gayathri S**, Lillback V, Udd B, Hackman P, Savarese M, Oghabian A: RNA-Seq library preparation bias affects long transcript detection

15:00 **Kuliś K**, Wolfsberger W, Shchubelka K, Oleksyk T, Polańska J: Performance evaluation of different machine learning algorithms for classifying type 1 diabetes on genomic data

15:10 **Urban A**, Kocikowska O, Adamiec-Organiściok M, Gendosz de Carrillo D: Evaluation of the cutoff significance for genetic targets of selected miRNAs in pathway enrichment analysis

15:20 **Skutnik K**, Żyła J: Semantic similarity of LLMs and overrepresentation results in pathway enrichment analysis

15:30 **Zamojski D**, Pudełko A, Marczyk M: Towards intelligent risk assessment in infertility diagnosis: Preliminary results of a machine learning-based approach

Parallel session (2B)

Chairman: dr inż. Marek Socha

14:00 **Machaj A**: Imaging-based assessment of porous anatomical models of the L5 vertebra using micro-CT for applications in personalized medicine

14:10 **Kempski A**, Borys D, Hebda A, Wawrzyniak P, Kijonka M, Mazgaj P, Bobek-Billewicz B: Prediction of 2-Hydroxyglutarate (2HG) based on nuclear magnetic resonance spectroscopy, using a GLX3/4 ratio between tumorous and healthy regions

14:20 **Klocek M**, Śmigiel S: MRI image analysis for Alzheimer's disease diagnosis using machine learning methods

14:30 **Koruba S**, Staśczak A, Psiuk-Maksymowicz K, Student S: Comparison of deep learning methods for coronary vessel segmentation from angiographic images

14:40 **Szerwiński M**, Śmigiel S: Application of artificial intelligence in musculoskeletal X-ray analysis for fracture detection

14:50 **Siekanowicz A**: Augmentation influence on classification of selected tumor types in MRI Images

15:00 **Markiel M**, Marczyk M, Nuredini A, Schoser B, Mendelsohn D, Santorelli FM, Tupler R, Polańska J: Machine learning-based classification of neuromuscular disorder patients using H&E-stained muscle biopsies

15:10 **Żur M**, Piórecki Ł, Socha M, Verdu-Diaz J, Diaz-Manera J, Straub V, Tupler R, Polańska J: MRI-based deep radiomic phenotyping of neuromuscular disorders: A topology-driven classification

15:20 **Piórecki Ł**, Socha M, Verdu-Diaz J, Topf A, Diaz-Manera J, Straub V, Tupler R, Polańska J: CoMPaSS-NMD: Directional radiomics as a segmentation-free approach for muscular dystrophy characterisation on T1-weighted MRI

15:30 **Seweryńska Z**, Borys D, Klaja B, Ochocka L, Michalik T: State Space Models for precise 3D glioma segmentation

15:40 **Szyszka M**, Zamojski D, Pudełko A, Marczyk M: Building a Polish medical language corpus for LLMs training

15:50 **Merta J**, Jarosz L, Ochocki M, Marczyk M: Improvement of the C-Mixup method for effective reduction of batch effects in prediction models based on whole-exome sequencing data

16:00 **Płonka W**, Kostka D, Lalik A, Kurpas M, Kimmel M, Jaksik R: Enhancing variant detection accuracy in FFPE samples: Comparative evaluation of computational and enzymatic correction approaches

16:10 **Meng K**, Bartlett T: Early excess methylation at disease-associated CpGs in endometrial cancer inferred from bulk tissue

16:15 **Sharma P**: Multi-modal deep learning predicts cell-type-specific chromatin accessibility

16:20 **Zielińska K**, Rudnicki W, Łabaj PP: From single markers to bacterial synergies: MultiDimensional Feature Selection reveals conserved microbiome signatures for personalized medicine

16:25 **Bhandari A**, Rana M, Subedi D, Sapkota AS, Poudel P, Aryal P: What omics modalities reveal about lung cancer: A machine learning study of subtype classification and immune stratification in LUSC

16:30 **Dorczak J**, Drygała B, Seget S, Jarosz-Chobot P, Polańska J: Exploring clinical heterogeneity among patients diagnosed with type 1 diabetes

16:35 **Radwan E**, Pini S, Nuredini A, Tupler R, Polańska J: Analysis of genetic variants in trio WES sequencing in support of the diagnosis of neuromuscular diseases – preliminary analysis

16:40 **Kostka D**, Sztromwasser P, Jaksik R: Integrative classification of loss of function variants in ovarian cancer genomes

15:40 **Żydowicz M**, Gaik K, Węgrzyn M, Borys D, Lupa D, Lipiec E, Ruciński A: Dual-stage segmentation of DNA plasmids from atomic force microscopy images

15:50 **Al Drabee DA**: Chest X-Ray–predicted age as a biomarker for short- and long-term mortality: Development and validation of a deep learning model

16:00 **Rudnicka M**, Bidzińska J, Dziadziuszko K, Szurowska E, Ulasiński J, Górec J, Dziedzic R, Rzyman W, Polańska J: Emphysema as a significant risk factor for lung cancer: preliminary results from the Pilot National Lung Cancer Screening in Poland

16:05 **Gorczewska I**, Borys D, Kijonka M, Jurkiewicz E, Sokół M: Age-related differences in paediatric brain morphology: a comparative analysis of global tissue volumes and subcortical structures

16:10 **Kijonka M**, Woźnica A, Kapek Ł, Matkowski M, Woźniak B, Bekman A, Niewiadomska B, Prażmowska B, Orlef A, Wendykier J, Ciszek W: Evaluation of image quality and mean glandular dose in grid and non-grid mammography techniques

16:15 **Mrukwa A**, Socha M, Rzyman W, Szurowska E, Dziadziuszko R, Polańska J: Patient-specific lung CT quantification

16:20 **Michalik T**, Seweryńska Z, Gaik K, Ochocka L, Klaja B, Borys D: Segment Anything Model evaluated on medical segmentation dataset

16:25 **Drygała B**, Staśczak A, Student S, Psiuk-Maksymowicz K: Automatic detection of stenosis in coronary vessels from angiographic images

16:30 **Golik-Paryż J**, Gorczewska I, Borys D, Handkiewicz-Junak D: Influence of time-point selection on organ dose assessment in patients treated with ^{177}Lu-DOTATATE

16:35 **Klaja B**, Borys D: Implant landmark detection and implant-aware bone segmentation in postoperative hip AP radiographs

16:40 **Gaik K**, Żydowicz M, Węgrzyn M, Borys D, Nurzyńska K, Lupa D, Lipiec E, Ruciński A: Coupled application of GANs and YOLO models for data augmentation and automated detection of DNA plasmids in AFM imagery

16:45 **Mołdawa A**, Koc A, Nowak N, Skórzewska O, Turczyn A, Wójcik A, Wróblewska K, Sage A, Cholewka A, Hebda A, Kijonka M, Borys D: Validation of automatic segmentation of subcortical structures using multiple filtering methods compared to manual delineation in multi-parametric MRI analysis

Parallel session (3A)		Parallel session (3B)	
	Chairwoman: dr inż. Aleksandra Suwalska		**Chairwoman: dr inż. Joanna Tobiasz**
17:00	**Oghabian A**, Jonson PH, Hackman P, Udd B, Savarese M: Alternative splicing landscapes across heart and skeletal muscle reveal mechanisms of development and disease	17:00	**Abdullah A**, Smołka S, Ayaz K, Shakibania S, Patel T, Zabłocka-Godlewska E, Krukiewicz K: Redox-active PEDOT antibacterial coatings for bacteria-triggered drug delivery
17:10	**Kavoosi M**, Ghavami S, Łos MJ: Autophagy acts as a molecular switch controlling fibroblast phenotypic reprogramming	17:10	**Smołka S**, Krukiewicz K: Nanostructurization of electrode surface as a crucial role in biosensor fabrication
17:20	**Losi F**, Salsi V, Tupler R: Integrative multi-omics reveals FRG2A lncRNA-driven nuclear reorganization in facioscapulohumeral muscular dystrophy	17:20	**Sugumar M**, Annamalai SK: Quinone-fused diazepine π-conjugated carbon black: A chemically induced topological-defect-engineered platform for ultrastable redox activity and ultrasensitive electrocatalytic sensing of ascorbic acid
17:30	**Gronkowska K**, Kołacz-Milewska K, Michlewska S, Robaszkiewicz A: Expression level of TP53 and KDM5B as a promising DNA-damaging agent response biomarker in cancers	17:30	**Grzela-Fraś K**, Łucki M, Barzowska-Gogola A, Pucelik B, Tyliszczak B: The effect of incorporating various active substances on the structure and properties of hydrogels
17:40	**Nuredini A**, Corrias R, Mendelsohn D, Pini S, Garzo A, Scipioni MP, Obach M, Laporte J, Savarese M, Diaz-Manera J, Straub V, Polańska J, Santorelli FM, Schoser B, Tupler R: The CoMPaSS-NMD neuromuscular genome atlas: A new AI-based platform for advanced deep phenotyping and stratification in hereditary neuromuscular disorders	17:40	**Mazurek V**: Personalized ankle–foot orthoses: Design strategies and biomechanical considerations
17:50	**Barzowska-Gogola A**, Sułek A, Jończyk J, Klimczak J, Danel T, Pucelik B: Replication stress in hormone-dependent HER2-positive breast cancer: New perspectives for targeted treatment	17:50	**Gwóźdź K**, Michalik T, Supierz J: Mobile solution for Bliss AAC
18:00	**Gawlas G**, Nowak A, Posid D, Seget S, Jarosz-Chobot P, Matejko B: Sleep disturbances in individuals with type 1 diabetes and their caregivers - cross-sectional quantitative study	18:00	**Saad AA**, Stępień E, Moskal P: *In vivo* range monitoring in upright hadron therapy using J-PET technology: Applications to proton beams
18:10	Barzowska-Gogola A, Łucki M, Baliś A, Sułek A, Danel T, Jończyk J, Klimczak J, **Pucelik B:** From clinical evidence to redefining precision oncology: The HER2-low paradox and intelligent therapeutic design in breast cancer	18:10	**Venigalla RT**: Diffusion-based physiological imputation for robust fetal heart rate baseline estimation
18:20	**Budziaszek J**, Blat A, Barzowska-Gogola A, Łucki M, Sułek A, Jończyk J, Klimczak J, Danel T, Pucelik B: Reprogramming antibacterial therapy: AI-guided strategies for personalized treatment of chronic wound infections	18:20	**Senaweera Y**: A computational method for molecular docking analysis of bioactive phytochemicals from jackfruit seed flour (*Artocarpus heterophyllus*) against hepatocellular carcinoma (HEPG2) cell line targets
18:30	**Czerwińska G**, Wójcik L, Osewska J, Robakowska M: Determinants of delayed diagnosis of oral cavity cancer and strategies for their mitigation using AI in clinical practice	18:30	**Łucki M**, Barzowska-Gogola A, Baliś A, Pucelik B: Drug delivery platforms for personalized therapy of hormone-dependent breast cancer
18:40	Golda A, **Bosowska Z**, Śmieja J, Zębik T, Student S: Impact of atmospheric pressure variability and time of hospital admission on the incidence and clinical course of acute myocardial infarction	18:40	**Shakibania S**, Abdullah A, Tomasiak A, Knapczyk-Korczak J, Stachewicz U, Skonieczna M, Krukiewicz K: Enhanced cell adhesion on polypyrrole-modified poly(ε-caprolactone) fibers for neural tissue engineering applications

18:45	**Roy Choudhary R**: Integrative transcriptomic analysis reveals shared molecular signatures and regulatory networks in tongue squamous cell carcinoma across diverse populations	18:45	**Radfar S**, Krukiewicz K, Cosnier S: Beyond Nafion: A triple-functional electropolymerized coating for biosensing excellence
18:50	**Mazgaj P,** Hebda A, Wawrzyniak P, Sadowski D, Kijonka M, Prażmowska J, Kapek Ł, Borys D, Rembak-Szynkiewicz J: The impact of dietary supplements on brain ^{1}H-MRS spectra – new diagnostic challenges	18:50	**Lasota I**, Pilarski P, Krukiewicz K, Kappen J: Gold nanostructure modified with polypyrrole films for ultra-sensitive detection of ovarian cancer
18:55	**Rejwana N**: Abemaciclib modulates cell-cycle-regulated genes in endometrial cancer revealed by transcriptome analysis	18:55	**Dźwięga P**: Surface EMG for control applications: Methods and challenges
19:00	**Drygała B**, Dorczak J, Seget S, Jarosz-Chobot P, Polańska J: Uncovering seasonal trends in pediatric type 1 diabetes	19:00	**Wojnarowska W**: Development of a two-region geometrical model of the L5 vertebra for numerical simulations
19:05	**Cichecka K**, Suwalska A: Prediction of insulin resistance based on epidemiological data using machine learning	19:05	**Długosz K**: Synthetic data in personalized medicine and oncology: Methods, applications, and challenges
19:10	**Więckowska I**, Adamska P: Odontogenic Keratocyst (OKC): Radiological features and diagnostic challenges	19:10	**Witkowski M**: Utility of synthetic data in clinical decision support systems: A task-aware methodological evaluation using TCGA LUAD data

Plenary session (4A)

Chairman: dr hab. inż. Michał Marczyk

19:15 – 19:30 **Conference summary and closing**