Záznamy vložené do ASEP za UI (1. 2. – 28. 2. 2026)

New ICS records in ASEP (1. 2. – 28. 2. 2026)

0645625 - ÚI 2027 GB eng J - Journal Article
Garbe, Frederik - Il'kovič, D. - Král, D. - Kučerák, F. - Lamaison, A.
Hypergraphs with uniform Turán density equal to 8/27.
Combinatorics Probability & Computing. Online 17 December 2025 (2026). ISSN 0963-5483. E-ISSN 1469-2163
Institutional support: RVO:67985807
Keywords : hypergraphs * uniform Turán density
Impact factor: 0.8, year: 2024 ; **AIS:** 1.08, rok: 2024
Method of publishing: Limited access
Result website:https://doi.org/10.1017/S0963548325100308
DOI: https://doi.org/10.1017/S0963548325100308
In the 1980s, Erdős and Sós initiated the study of Turán problems with a uniformity condition on the distribution of edges: the uniform Turán density of a hypergraph H is the infimum over all d for which any sufficiently large hypergraph with the property that all its linear-size subhypergraphs have density at least d contains H. In particular, they asked to determine the uniform Turán densities of K4(3)- and K4(3). After more than 30 years, the former was solved in [Israel J. Math. 211 (2016), 349-366] and [J. Eur. Math. Soc. 20 (2018), 1139-1159], while the latter still remains open. Till today, there are known constructions of 3 -uniform hypergraphs with uniform Turán density equal to 0, 1/27, 4/27, and 1/4 only. We extend this list by a fifth value: we prove an easy to verify sufficient condition for the uniform Turán density to be equal to 8/27 and identify hypergraphs satisfying this condition. © The Author(s), 2025. Published by Cambridge University Press.
Permanent Link: https://hdl.handle.net/11104/0375405

0645613 - ÚI 2027 RIV US eng J - Journal Article
Ghosh, Anupam - Liang, S. - Manshour, Pouya - Paluš, Milan
Identifying the net information flow direction in mutually coupled non-identical chaotic oscillators.
Chaos. Roč. 36, č. 2 (2026), č. článku 021103. ISSN 1054-1500. E-ISSN 1089-7682
R&D Projects: GA ČR(CZ) GA25-18105S
Grant - others:AV ČR(CZ) AP1901
Program: Akademická prémie - Praemium Academiae
Institutional support: RVO:67985807
Keywords : Lyapunov exponent * Coupled oscillators * Chaotic oscillator * Chaotic dynamics * Chaotic systems * Information and communication theory * Information theory entropy * Statistical analysis
Impact factor: 3.2, year: 2024 ; **AIS:** 0.691, rok: 2024
Method of publishing: Limited access
Result website:https://doi.org/10.1063/5.0311730
DOI: https://doi.org/10.1063/5.0311730

This paper focuses on a fundamental inquiry in a coupled-oscillator model framework. It specifically addresses the direction of net information flow in mutually coupled non-identical chaotic oscillators. Adopting a specific form of conditional mutual information as a model-free and asymmetric index, we establish that if the magnitude of the maximum Lyapunov exponent can be defined as the "degree of chaos" of a given isolated chaotic system, a predominant net information transfer exists from the oscillator exhibiting a higher degree of chaos to the other while they are coupled. Subsequently, the calculation of projected Kolmogorov–Sinai entropy for variables associated with the interacting oscillators reveals that the oscillator exhibiting a higher degree of chaos is also characterized by a higher projected Kolmogorov–Sinai entropy value and transfers more information to the other oscillator. We incorporate two distinct categories of coupled "non-identical" oscillators to strengthen our claim. In the first category, both oscillators share identical functional forms, differing solely in one parameter value. We also adopt another measure, the Liang–Kleeman information flow, to support the generality of our results. The functional forms of the interacting oscillators are entirely different in the second category. We further extend our study to the coupled-oscillator models, where the interacting oscillators possess different dimensions in phase space. These comprehensive analyses support the broad applicability of our results.
Permanent Link: https://hdl.handle.net/11104/0375386

0646111 - ÚI 2027 GB eng J - Journal Article
Skarding, Joakim - Šanda, Pavel
Making the complete OpenAIRE citation graph easily accessible through compact data representation.
Journal of Open Humanities Data. Submitted February 13, č. 2026 (2026). E-ISSN 2059-481X
R&D Projects: GA MŠMT(CZ) EH23_025/0008711
Institutional support: RVO:67985807
Impact factor: 0.3, year: 2024
The OpenAIRE graph contains a large citation graph dataset, with over 200 million publications and over 2 billion citations. The current graph is available as a dump with metadata which uncompressed totals ~TB. This makes it hard to process on conventional computers. To make this network more available for the community we provide a processed OpenAIRE graph which is downscaled to 32GB, while preserving the full graph structure. Apart from this we offer the processed data in very simple format, which allows further straightforward manipulation. We also provide a python pipeline, which can be used to process the next releases of the OpenAIRE graph.
Permanent Link: https://hdl.handle.net/11104/0375875
Research data: Zenodo, Codeberg
Preprint: https://arxiv.org/abs/2602.12206

0646121 - ÚI 2027 US eng J - Journal Article
Rosella, Giuliano - Weiss, Y.
Post Completeness in Conditional Logic.
Notre Dame Journal of Formal Logic. Submitted February 16, č. 2026 (2026). ISSN 0029-4527. E-ISSN 1939-0726
R&D Projects: GA MŠMT(CZ) EH23_025/0008711
Institutional support: RVO:67985807
Keywords : Conditional logic * Counterfactual logic * Modal logic * Post completeness * Selection function
Impact factor: 0.5, year: 2024 ; **AIS:** 0.46, rok: 2024
A logic is Post complete if it is consistent but has no consistent proper extensions. In this article, we systematically investigate the Post complete extensions of certain basic conditional logics. We identify all of the finitely many regular and normal Post complete conditional logics, and prove analogues of Makinson's embedding theorems. We also show that certain basic conditional logics have uncountably

many Post complete extensions for which closure under some, but not necessarily all, rules peculiar to the conditional are relaxed. We reflect on what our results tell us about the structure of certain lattices of conditional logics and also draw some morals for multimodal logic.
Permanent Link: https://hdl.handle.net/11104/0375884

0645672 - ÚI 2027 RIV US J - Journal Article
Hladký, Jan - Ilkovič, S. - León, J. - Shu, X.
On cospectral graphons.
ELECTRONIC JOURNAL OF COMBINATORICS. Roč. 33, č. 1 (2026), č. článku P110.
R&D Projects: GA ČR(CZ) GX21-21762X
Institutional support: RVO:67985807
Keywords : isomorphism
OECD category: Pure mathematics
DOI: https://doi.org/10.37236/13768
In this short note, we study the notion of cospectral graphons, paralleling the notion of cospectral graphs. As in the graph case, we give three equivalent definitions: by equality of spectra, by equality of cycle densities, and by a unitary transformation. We also give an example of two cospectral graphons that cannot be approximated by two sequences of cospectral graphs in the cut-distance.
Permanent Link: https://hdl.handle.net/11104/0375457
Preprint: https://doi.org/10.48550/arXiv.2411.13229

0645620 - ÚI 2026 RIV NL eng J - Journal Article
Latif, Yasir - Pryor, S. C. - Ateeq-Ur-Rehman, S. - Muhammad, S. - Yaseen, M. - Atif Wazir, M.
Transition of the Karakoram anomaly under emerging hydroclimatic trends.
Science of the Total Environment. Roč. 1006, December (2025), č. článku 180678. ISSN 0048-9697. E-ISSN 1879-1026
Grant - others:AV ČR(CZ) AP1901
Program: Akademická prémie - Praemium Academiae
Institutional support: RVO:67985807
Keywords : Karakoram anomaly * Hydroclimatic trends * Wavelet transfer function * Artificial neural networks
OECD category: Climatic research
Impact factor: 8, year: 2024 ; **AIS:** 1.514, rok: 2024
Method of publishing: Limited access
Result website:
https://doi.org/10.1016/j.scitotenv.2025.180678
DOI: https://doi.org/10.1016/j.scitotenv.2025.180678
The presence of a Karakoram Anomaly (KA) where, in contrast to most global glaciers, regional glaciers are reported to have either stable or quasi-positive mass balance commonly has been challenged by recent glacier mass balance studies in response to decadal variability in temperature and precipitation. Here, we examine the amplitude and temporal evolution of the KA by observing hydroclimatic (temperature, precipitation, snow and streamflow) trends in the extensive snow/glacier-fed Hunza River Basin (HRB). We use daily time series of in situ hydroclimatic data in combination with (reanalysis/satellite) products (1995–2021), and MODIS Snow Covered Area (SCA) (2001–2020) to quantify the persistence of KA. The Wavelet Transfer Function (WTF), Innovative Trend Analysis (ITA), and Mann-Kendall (MK) tests validated the direction and extent of secular hydroclimatic trends. We further establish a hydroclimatic relationship for HRB using an Artificial Neural Networks (ANNs) incorporating more extensive variables of relative humidity and solar radiation for the model robustness. Transitioning of the KA to glacier mass loss is confirmed to be a result of climatic trends,

and specifically summertime — focused enhanced intense warming, have triggered regional snow cover removal and increased streamflow. Mean annual near-surface temperatures in Khunjerab significantly increased by 0.33 and 0.26 /decade from (1995–2021) based on analyses of data from ERA5 and stations, respectively. The SCA trends are primarily negative in summer and positive in winter, corresponding to enhanced winter flows. The WTF and ITA indicate a significant decline in SC during January, April, May, August and October. Temperature exhibits a significant causal relationship with streamflow, snow and relative humidity. Granger's index and ANNs demonstrate that 2-m temperatures, snow cover, relative humidity, and solar radiation have stronger correlations to streamflow than precipitation.
Permanent Link: https://hdl.handle.net/11104/0375398

0645680 - ÚI 2026 RIV US eng J - Journal Article
Garbe, F. - Hladký, Jan
A tower lower bound for the degree relaxation of the Regularity Lemma.
Combinatorial Theory. Roč. 5, č. 4 (2025), č. článku 8. ISSN 2766-1334
R&D Projects: GA ČR(CZ) GX21-21762X
Institutional support: RVO:67985807
Keywords : Szemerédi's regularity lemma * degree
OECD category: Pure mathematics
Method of publishing: Open access
Result website:https://doi.org/10.5070/C65465674
DOI: https://doi.org/10.5070/C65465674
It is well-known that if (A, B) is an ε/2 -regular pair (in the sense of Szemeredi) then there exist sets $A' \subseteq A$ and $B' \subseteq B$ with $|A'| \leqslant \varepsilon|A|$ and $|B'| \leqslant \varepsilon|B|$ so that the degrees of all vertices in $A \setminus A'$ differ by at most $\varepsilon|B|$ and the degrees of all vertices in $B \setminus B'$ differ by at most $\varepsilon|A|$. We call such a property ε-degularity. This leads to the notion of an ε-degular partition of a graph in the same way as the definition of ε-regular pairs leads to the notion of ε-regular partitions. We show that there exist graphs in which any ε-degular partition requires the number of clusters to be tower(Θ(ε^(−1/3))). That is, even though degularity is a substantial relaxation of regularity, in general one cannot improve much on the bounds that come with Szemeredi's regularity lemma.
Permanent Link: https://hdl.handle.net/11104/0375465

0646796 - ÚI 2026 RIV CZ cze J - Journal Article
Geletič, Jan - Belda, M. - Krč, Pavel - Květoňová, V. - Lehnert, M. - Pikousová, T. - Resler, Jaroslav - Řezníček, Hynek - Vlček, O.
Analýza komplexního efektu stromů v uličních kaňonech s využitím numerického modelu s vysokým rozlišením.
[Analysis of the Comprehensive Effects of Street Trees in Street Canyons Using a High-resolution Numerical Model.]
Urbanismus a územní rozvoj. Roč. 28, č. 6 (2025), s. 3-10. ISSN 1212-0855
R&D Projects: GA TA ČR(CZ) SQ01010181
Grant - others:AV ČR(CZ) StrategieAV21/36
Program: StrategieAV
Institutional support: RVO:67985807
Keywords : Praha * analýza * stromořadí * mikroklima * kvalita ovzduší
OECD category: Meteorology and atmospheric sciences
Method of publishing: Open access
Result website:https://www.uur.cz/casopis-uaur/cisla-casopisu-journal-issues/2025/62025/

Praha, ulice Sokolská a Legerova – jedny z nejvíce dopravně zatížených ulic v centru hlavního města, kterými denně projede více než 65 000 automobilů. Hlavní město Praha zde s cílem vytvořit vlídné a bezpečné prostředí pro místní obyvatele, návštěvníky a všechny účastníky silničního provozu – tedy chodce, cyklisty i motoristy – v následujících letech plánuje rozsáhlou revitalizaci. Klíčovým prvkem této revitalizace je obnovení stromořadí, tzv. „uličních stromů". Přestože několik studií publikovaných v posledních letech zmiňuje jak pozitivní, tak negativní efekty stromů, tato problematika zůstává diskutována pouze okrajově. Obnova stromořadí, ačkoli je zamýšlena v pozitivním smyslu, může mít i značné negativní dopady. Pro posouzení potenciálního dopadu výsadby stromů na podmínky v rámci ulice lze použít nově vyvíjené a validované výsledky mikroklimatických modelů. Díky vysoké úrovni detailu mohou poskytnout nový pohled na procesy v uličním kaňonu a přinést novou perspektivu pro komplexní posouzení adaptačních opatření. Cílem článku je na příkladu reprezentativní, dopravně méně zatížené (14500 automobilů/den) ulice Jugoslávských partyzánů a nedaleké ulice Terronská, jakožto praktického příkladu „ozeleněné ulice" ve validované doméně v Praze-Dejvicích, popsat efekty, které mají uliční stromy – ve vegetačním období – na mikroklimatické podmínky i kvalitu ovzduší.

Prague, Sokolská and Legerova streets – probably one of the busiest streets in the city centre, with more than 65,000 cars passing through them daily. The City of Prague is planning an extensive revitalisation of the streets in the coming years, intending to create a friendly and safe environment for residents, visitors and all road users – pedestrians, cyclists and motorists. A key element of this revitalisation is the restoration of tree rows, so-called "street trees". Although several studies published in recent years mention both positive and negative effects of trees, this issue remains only marginally discussed. The restoration of tree rows, although intended in a positive sense, can also have significant negative impacts. Newly developed and validated results of microclimatic models can be used to assess the potential effects of tree planting on conditions within the street. Thanks to the high level of detail, they can provide a new view of the processes in the street canyon and bring a new perspective for a comprehensive assessment of adaptation measures. The article aims to describe the effects that street trees have – during the growing season – on microclimatic conditions and air quality, using the example of the representative, less traffic-laden (14,500 cars/day) Jugoslávských partyzánů Street and the nearby Terronská Street, as a practical example of a "green street" in the validated domain in Prague-Dejvice.
Permanent Link: https://hdl.handle.net/11104/0376510

0646807 - ÚI 2026 RIV CZ cze J - Journal Article
Kolková, K. - Geletič, Jan - Lehnert, M.
Přehřívání dětských hřišť: opomíjené riziko městského prostředí.
[Overheated playgrounds: An overlooked risk in urban environments.]
Geografické rozhledy. Roč. 35, č. 3 (2025), s. 20-24. ISSN 1210-3004
Grant - others:AV ČR(CZ) StrategieAV21/36
Program: StrategieAV
Institutional support: RVO:67985807
Keywords : klimatická změna * tepelný ostrov města * dětská hřiště * tepelný komfort * zelená infrastruktura * climate change * urban heat island * children's playgrounds * thermal comfort * green infrastructure
OECD category: Meteorology and atmospheric sciences
Method of publishing: Open access
Result website:https://www.geograficke-rozhledy.cz/archiv/clanek/3336
Článek se zabývá problematikou tepelného komfortu na dětských hřištích v prostředí měst. Shrnuje současné poznatky o vlivu městského prostředí a zelené infrastruktury na tepelnou zátěž a povrchové teploty herních prvků. Výsledky českých i zahraničních studií potvrzují klíčovou roli městské zeleně při zmírňování tepelného stresu dětí a zároveň poukazují na absenci těchto hledisek v platné legislativě a technických normách.

The article addresses the issue of thermal comfort at children's playgrounds in urban environments. It summarizes current knowledge on the influence of urban form and green infrastructure on thermal stress and the surface temperatures of playground equipment. Results from Czech and international studies confirm the key role of urban greenery in reducing children's heat stress and point to the absence of these aspects in current legislation and technical standards.
Permanent Link: https://hdl.handle.net/11104/0376523

0646970 - BC 2026 RIV GB eng J - Journal Article
Symonová, Radka - Jůza, Tomáš - Tesfaye, Million - Brabec, Marek - Sajdlová, Zuzana - Brabec, Jakub - Kubečka, Jan
Differential activity of transcription factors and neuronal effectors during the development of pikeperch brain.
Biology Open. Roč. 14, č. 11 (2025), č. článku bio062280. ISSN 2046-6390. E-ISSN 2046-6390
R&D Projects: GA MŠMT(CZ) LM2023055
Institutional support: RVO:60077344 ; RVO:67985807
Keywords : gene-expression analysis * extracellular-space * nervous-system * Solute carrier transporters * Neurodevelopmental regulome
OECD category: Biochemistry and molecular biology; Statistics and probability (UIVT-O)
Impact factor: 1.7, year: 2024 ; **AIS:** 0.613, rok: 2024
Method of publishing: Open access
Result website:
https://doi.org/10.1242/bio.062280
DOI: https://doi.org/10.1242/bio.062280
Juvenile pikeperch (Sander lucioperca) undergo several ontogenetic shifts, the timing of which determines the survival of their first winter. The shift from planktivory to a more active piscivorous phenotype involves moving from pelagic to demersal habitat with more stimuli and hence potential brain functional reorganizations. During two consecutive years, we collected planktivores and piscivores with different body sizes between the years, recording distinct stages relative to the shift, and analyzed their whole-brain transcriptomes in an ecological context. We identified a distinct non-overlapping group of transcription factors (TFs) significantly upregulated in each phenotype: TFs upregulated in planktivores correspond to initial establishment of brain regions and overall architecture., TFs upregulated in piscivores correspond to the refinement of neurons and the formation of specific neuronal circuits. The planktivores independently of body size were characterized by interconnected activity of two TFs, fosab and junba. Gene set enrichment revealed extracellular matrix and collagen-related transcripts in piscivores from both years. A high activity of solute carrier (Slc) transporters was identified in the smaller-bodied piscivores. The neurotranscriptomics results reflected differences in body size and matched with ecological data and survival rates. The brain regulome indicated that body size differences translate into the specific gene activity of juvenile pikeperch.
Permanent Link: https://hdl.handle.net/11104/0376614

0646969 - BC 2026 RIV US eng J - Journal Article
Symonová, Radka - Jůza, Tomáš - Tesfaye, Million - Brabec, Marek - Bartoň, Daniel - Blabolil, Petr - Draštík, Vladislav - Kočvara, Luboš - Muška, Milan - Prchalová, Marie - Říha, Milan - Šmejkal, Marek - Souza, A. T. - Sajdlová, Zuzana - Tušer, Michal - Vašek, Mojmír - Skubic, C. - Brabec, J. - Kubečka, Jan
Transition to piscivory seen through brain transcriptomics in a juvenile percid fish: Complex interplay of differential gene transcription, alternative splicing, and ncRNA activity.
Journal of Experimental Zoology Part A-Ecological and Integrative Physiology. Roč. 343, č. 2 (2025), s.

257-277. ISSN 2471-5638. E-ISSN 2471-5646
R&D Projects: GA MZe QK22020134; GA MŠMT(CZ) LM2018131
Grant - others:AV ČR(CZ) StrategieAV21/20
Program: StrategieAV
Institutional support: RVO:60077344 ; RVO:67985807
Keywords : melanin-concentrating hormone * sander-lucioperca l. * stizostedion-lucioperca * brain transcriptome * snoRNA
OECD category: Biochemistry and molecular biology; Statistics and probability (UIVT-O)
Impact factor: 1.4, year: 2024 ; **AIS:** 0.575, rok: 2024
Method of publishing: Open access
Result website:https://doi.org/10.1002/jez.2886
DOI: https://doi.org/10.1002/jez.2886
Pikeperch (Sander Lucioperca) belongs to main predatory fish species in freshwater bodies throughout Europe playing the key role by reducing planktivorous fish abundance. Two size classes of the young-of-the-year (YOY) pikeperch are known in Europe and North America. Our long-term fish survey elucidates late-summer size distribution of YOY pikeperch in the Lipno Reservoir (Czechia) and recognizes two distinct subcohorts: smaller pelagic planktivores heavily outnumber larger demersal piscivores. To explore molecular mechanisms accompanying the switch from planktivory to piscivory, we compared brain transcriptomes of both subcohorts and identified 148 differentially transcribed genes. The pathway enrichment analyses identified the piscivorous phase to be associated with genes involved in collagen and extracellular matrix generation with numerous Gene Ontology (GO), while the planktivorous phase was associated with genes for non-muscle-myosins (NMM) with less GO terms. Transcripts further upregulated in planktivores from the periphery of the NMM network were Pmchl, Pomcl, and Pyyb, all involved also in appetite control and producing (an)orexigenic neuropeptides. Noncoding RNAs were upregulated in transcriptomes of planktivores including three transcripts of snoRNA U85. Thirty genes mostly functionally unrelated to those differentially transcribed were alternatively spliced between the subcohorts. Our results indicate planktivores as potentially driven by voracity to initiate the switch to piscivory, while piscivores undergo a dynamic brain development. We propose a spatiotemporal spreading of juvenile development over a longer period and larger spatial scales through developmental plasticity as an adaptation to exploiting all types of resources and decreasing the intraspecific competition.
Permanent Link: https://hdl.handle.net/11104/0376613

0646224 - ÚI 2026 CZ cze J - Journal Article
Kozáková, E. - Havlík, M. - Tomeček, D. - Hlinka, Jaroslav - Horáček, J.
Neuronální koreláty spontánního vstupu informace do proudu vědomí: nemyslete na bílého medvěda. [Neuronal correlates of entry of spontaneous thought into the stream of consciousness: Don't think about the white bear.]
Psychiatrie. Roč. 22, č. 3 (2018), s. 111-117. ISSN 1211-7579
Institutional support: RVO:67985807
Method of publishing: Limited access
Result website: https://www.tigis.cz/images/stories/psychiatrie/2018/3_2018/kozakova_3_2018.pdf
Permanent Link: https://hdl.handle.net/11104/0375925

0646130 - ÚI 2027 GB J - Journal Article
Rosella, Giuliano - Ugolini, S.
The Algebras of Lewis's Counterfactuals: Duality Theory.
Review of Symbolic Logic. Roč. 19, č. 1 (2026), s. 46-80. ISSN 1755-0203. E-ISSN 1755-0211
R&D Projects: GA MŠMT(CZ) EH23_025/0008711

Impact factor: 0.9, year: 2024 ; **AIS:** 0.691, rok: 2024
Method of publishing: Open access
Result website:
https://doi.org/10.1017/S1755020325101056 https://doi.org/10.1017/S1755020325101056
DOI: https://doi.org/10.1017/S1755020325101056
Permanent Link: https://hdl.handle.net/11104/0375901

0646006 - ÚI 2027 eng C - Conference Paper (international conference)
Bílková, Marta - Fussner, Daniel Wesley - Kuznets, Roman
Agent Interpolation in Distributed Systems (Accepted to RAMICS 2026 Proceedings).
[RAMiCS 2026: The International Conference on Relational and Algebraic Methods in Computer Science /22./. Będlewo (PL), 07.04.2026-10.04.2026]
R&D Projects: GA ČR(CZ) GF22-23022L; GA MŠMT(CZ) EH23_025/0008711
Institutional support: RVO:67985807
OECD category: Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8)
We introduce a new type of proof formalism for multiagent modal logics with S5-type modalities, viewed here as a logic of multiagent epistemic reasoning, and use this formalism to give a constructive proof that multiagent S5 enjoys a strong form of Craig interpolation with respect to both propositional variables and agents, the latter in the form of agent-indexed knowledge modalities. Our new proof formalism combines the features of hypersequents to represent S5 modalities with nested sequents to represent the T-like modality alternations. Combining these features is necessary to obtain computationally effective interpolation for agents rather than merely propositional variables, and we further show that our new proof formalism is sound and complete, cut-free, strongly terminating, and yields decidability and the finite model property for multiagent S5.
Permanent Link: https://hdl.handle.net/11104/0375771

0645692 - ÚI 2026 RIV US eng C - Conference Paper (international conference)
Pitra, Z. - Koza, J. - Tumpach, J. - Holeňa, Martin
Landscape Analysis for Surrogate Models in the Evolutionary Black-Box Context.
GECCO '25 Companion: Proceedings of the Genetic and Evolutionary Computation Conference Companion. New York: Association for Computing Machinery, 2025 - (Ochoa, G.), s. 51-52. ISBN 979-8-4007-1464-1.
[GECCO 2025: The Genetic and Evolutionary Computation Conference. Málaga / hybrid (ES), 14.07.2025-18.07.2025]
Institutional support: RVO:67985807
Keywords : Black-box optimization * Surrogate modeling * Landscape analysis * Metalearning * CMA-ES
OECD category: Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8)
Result website: https://doi.org/10.1145/3712255.3734236
DOI: https://doi.org/10.1145/3712255.3734236
This paper, originally published in Evolutionary Computation Journal [11], investigates the interplay between surrogate model performance, model settings, and black-box landscape features within the context of Covariance Matrix Adaptation Evolution Strategy (CMA-ES). Our focus is on understanding how landscape characteristics influence surrogate model accuracy during evolutionary optimization, aiming to inform the automated selection and tuning of surrogate models. We perform a comprehensive feature analysis, identifying robust and informative landscape features relevant to surrogate modeling. The analysis explores the error dependencies of four models across 39 settings,

utilizing three methods for input data selection, drawn from surrogate-assisted CMA-ES runs on noiseless benchmarks within the Comparing Continuous Optimizers framework. The insights gained can help in the development of adaptive surrogate modeling strategies and metalearning approaches for evolutionary computation.
Permanent Link: https://hdl.handle.net/11104/0375477

0646788 - ÚI 2026 RIV AU eng C - Conference Paper (international conference)
Kozhemiachenko, D. - Sedlár, Igor
Complexity of Łukasiewicz Modal Probabilistic Logics.
Proceedings Twentieth Conference on Theoretical Aspects of Rationality and Knowledge (TARK 2025). Waterloo: Open Publishing Association, 2025 - (Bjorndahl, A.), s. 350-364. Electronic Proceedings in Theoretical Computer Science, 437. ISSN 2075-2180.
[TARK 2025: Theoretical Aspects of Rationality and Knowledge /20./. Düsseldorf (DE), 14.07.2025-16.07.2025]
R&D Projects: GA ČR(CZ) GA22-16111S
Institutional support: RVO:67985807
Result website: https://doi.org/10.4204/EPTCS.437.28
DOI: https://doi.org/10.4204/EPTCS.437.28
Modal probabilistic logics provide a framework for reasoning about probability in modal contexts, involving notions such as knowledge, belief, time, and action. In this paper, we study a particular family of these logics, extending the modal Łukasiewicz many-valued logic. These logics are shown to be capable of expressing nuanced probabilistic concepts, including upper and lower probabilities. Our main contribution is a PSPACE-completeness result for two variants of the local consequence problem, providing a precise computational characterisation.
Permanent Link: https://hdl.handle.net/11104/0376489

0645857 - ÚI 2026 RIV CZ eng C - Conference Paper (international conference)
Kalina, Jan
Statistical Analysis of the 2024 U.S. Presidential Election: Demographics and Swing States.
RELIK 2025 Conference Proceedings. Prague: University of Economics and Business, 2025 - (Langhamrová, J.; Vrabcová, J.), s. 181-190. ISBN 978-80-245-2571-6.
[RELIK 2025: The International Scientific Conference. Reproduction of Human Capital - mutual links and connections /18./. Prague (CZ), 13.11.2025-14.11.2025]
Institutional support: RVO:67985807
Keywords : election results * linear regression * robust statistics * regularization * electoral demography
OECD category: Statistics and probability
Result website: https://relik.vse.cz/2025/download/pdf/854-Kalina-Jan-paper.pdf
This paper provides an analysis of the 2024 U.S. presidential election using advanced statistical techniques. The study models the popular vote as a response to eight demographic predictors at the state-wide level, incorporating results from the 2020 election to enhance the analysis. A particular focus is given to the application of two recently developed tools inspired by the least weighted squares estimator (LWS): LWS-lasso estimator and LWSquantiles, which are robust methods designed to handle datasets under multicollinearity, heteroscedasticity, and the presence of outliers. The findings emphasize the critical influence of demographic factors in shaping electoral outcomes, illustrating how demographic shifts impact the dynamics of the 2024 election. Special attention is given to the results in seven key swing states, offering precise insights into their pivotal roles in the electoral landscape. Based on the analysis, we propose a novel classification of the swing states into three distinct clusters, taking into account both their demographic outlyingness and their role in the

linear model, offering new insights into their strategic importance in the electoral process.
Permanent Link: https://hdl.handle.net/11104/0375647

0646015 - ÚI 2027 RIV CZ eng L4 - Software
Matonoha, Ctirad - Brabec, Marek
NOD (Numerically Optimized Design).
Internal code: NOD2026 ; 2026
Technical parameters: Numerická optimalizace statistického prostorového designu s korelovanými daty pro zadaný diskretizační grid a kovarianční parametry.
Economic parameters: Hledání optimálního umístění dodatečného měřicího bodu ve 2D Gaussovském poli s nestacionární střední hodnotou, heteroskedasticitou a nehomogenní kovariancí.
R&D Projects: GA TA ČR(CZ) SS02030031
Institutional support: RVO:67985807
Result website: https://www.cs.cas.cz/matonoha/?item=../soft/nod/index
NOD is a Fortran-based numerical spatial statistical design optimization system for 2D correlated data on arbitrary domain that is discretized via fine equidistant grid. The user supplies the grid covering the domain (containing spatial coordinates and relevant covariates in appropriate matrices), the set of existing measurement points (containing only spatial coordinates), and covariance parameters. The system then finds optimal placement of a new measurement point with respect to the minimax criterion (minimizing the maximum Kriging spatial prediction variance in the grid by the placement). This criterion arises naturally when considering spatial interpolation (and subsequent mapping) of a measured quantity within the area from a finite set of measurements of a given variable (e.g., a concentration of air pollutant). Map/interpolation quality is then quantified by Kriging variances at all grid points and the worst case is represented by the maximum to be minimized. While the maximum is always evaluated over the whole grid, the actual measurement placement can be further restricted by the user-supplied vector of admissibility indicators (1/0 variables indicating whether a given grid point is or is not admissible for a new measurement placement, e.g. through practical/logistical or other considerations).
Permanent Link: https://hdl.handle.net/11104/0375775

0645665 - ÚI 2026 RIV CZ eng A - Abstract
Fussner, Daniel Wesley
Amalgamation in lattice-ordered groups and cancellative residuated structures.
SSAOS 2025 Abstracts. Prague: Jednota českých matematiků a fyziků, MFF UK, TF ČZU, 2025. s. 11-11.
[SSAOS 2025: Summer School on Algebra and Ordered Sets /63./. 07.09.2025-12.09.2025, Blansko]
R&D Projects: GA ČR(CZ) GM25-18306M
Institutional support: RVO:67985807
OECD category: Pure mathematics
Result website: https://www.karlin.mff.cuni.cz/~ssaos/abstracts/booklet.pdf
ZÁKLADNÍ ÚDAJE: SSAOS 2025 Abstracts. Prague: Jednota českých matematiků a fyziků, MFF UK, TF ČZU, 2025. s. 11-11. [SSAOS 2025: Summer School on Algebra and Ordered Sets /63./. 07.09.2025-12.09.2025, Blansko]. ABSTRAKT: Recently, there has been tremendous progress in developing a systematic theory of amalgamation in residuated structures, but extending this progress to cancellative residuated structures has proven to be one of the most significant challenges in this body of work. This series of lectures focuses on this problem, in particular charting the difficult terrain around amalgamation in lattice-ordered groups. We discuss both the landmark results in this field as well as new avenues toward the resolution of long open problems.
Permanent Link: https://hdl.handle.net/11104/0375440

0645861 - HÚ 2026 cze A - Abstract
Žáková, Michaela - Brabec, Marek
Statistické modelování historických dat s využitím expertních historických znalostí.
[Statistical modelling of historical data using expert historical knowledge.]
[Kick-off Meeting výzkumného programu Epicentra civilizace – inteligentní domácnosti, technologie a společnost. Praha, 08.04.2025-08.04.2025]
Method of presentation: Prezentace
Event organizer: Historický ústav AV ČR, Mikrobiologický ústav AV ČR
URL events: https://www.hiu.cas.cz/udalosti/kick-off-meeting-vyzkumneho-programu-strategie-av21-epicentra-civilizace-inteligentni-domacnosti-technologie-a-spolecnost
Grant - others:AV ČR(CZ) StrategieAV21/37
Program: StrategieAV
Institutional support: RVO:67985963 ; RVO:67985807
Keywords : Statistical Data Modelling * Noblewomen * Household
OECD category: History (history of science and technology to be 6.3, history of specific sciences to be under the respective headings)
Prezentace v rámci Kick-off meeting výzkumného programu Strategie AV21 Epicentra civilizace – Inteligentní domácnosti, technologie a společnost.
Presentation at the Kick-off meeting research programme 'Strategie AV21 Epicentra civilizace – Inteligentní domácnosti, technologie a společnost'.
Permanent Link: https://hdl.handle.net/11104/0375654

0645642 - ÚI 2026 cze E - Electronic Document
Neruda, Roman - Kalina, Jan
Když se potkají dvě umělé inteligence.
Prague: Týden Akademie věd ČR / Youtube.com, 2025
Institutional support: RVO:67985807
Keywords : přednáška * popularisation of science * popularizace vědy
Result website: https://www.youtube.com/watch?v=I1Z-8FuIK6g
mělá inteligence dnes není jen jeden systém, ale často souhra různých přístupů. Na jedné straně jsou inteligentní agenti, kteří komunikují, rozhodují a dokážou napodobovat lidské chování. Na druhé straně je statistika, která dává AI základní schopnost učit se z dat a reagovat správně v nejistých situacích. V této přednášce ukážeme, jak se tyto dvě podoby AI vzájemně doplňují a proč je jejich spojení klíčové pro fungování moderních systémů. Připravte se na fascinující pohled na AI jako živý ekosystém různých inteligencí, které spolu interagují a tvoří budoucnost.
Permanent Link: https://hdl.handle.net/11104/0375416