Research activity

Preprints

A. Coja-Oghlan, P. Gao, **M. Hahn-Klimroth**, J. Lee, N. Müller, M. Rolvien: “The full rank condition for sparse random matrices”. arXiv:2112.14090 [math.CO]

P. Berenbrink, A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth**, D. Kaaser, M. Rau: “On the Hierarchy of Distributed Majority Protocols”. arXiv:2205.08203 [cs.DC]

P. Berenbrink, **M. Hahn-Klimroth**, D. Kaaser, L. Krieg, M. Rau: “Inference of a Rumor's Source in the Independent Cascade Model”. arXiv:2205.12125 [cs.SI]

M. Hahn-Klimroth, O. Parczyk, Y. Person: "Minimum degree conditions for containing an r-regular r-connected subgraph". arXiv:2108.07601 [math.CO]

Publications

2022

A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth**, A. Wein, I. Zadik: “Statistical and Computational Phase Transitions in Group Testing”. Proc. 35th Conference on Learning Theory (COLT 2022) (about to appear).

A. Coja-Oghlan, **M. Hahn-Klimroth**, P. Loick, M. Penschuck: "Efficient and accurate group testing via Belief Propagation: an empirical study". Proc. 20th International Symposium on Experimental Algorithms (SEA 2022) (about to appear).

O. Gebhard, **M. Hahn-Klimroth**, D. Kaaser, P. Loick: “On the Parallel Reconstruction from Pooled Data”. Proc.36th IEEE International Parallel & Distributed Processing Symposium (IPDPS 2022) (about to appear).

O. Gebhard, **M. Hahn-Klimroth**, O. Parczyk, M. Penschuck, M. Rolvien, J. Scarlett, N. Tan: “Near optimal sparsity-constrained group testing: improved bounds and algorithms.” IEEE Transactions on Information Theory 68(5) (2022), pp. 3253-3280.

J. Gübert, **M. Hahn-Klimroth**, PW. Dierkes: "BOVIDS: A deep learning-based software package for pose estimation to evaluate nightly behavior and its application to Common Elands (Tragelaphus oryx) in zoos." Ecology and Evolution 12 (2022), e8701.

M. Hahn-Klimroth, D. Kaaser: “Distributed Reconstruction of Noisy Pooled Data”. Proc. 42nd IEEE International Conference on Distributed Computing Systems (ICDCS 2022) (about to appear).

M. Hahn-Klimroth, N. Müller: "Near optimal efficient decoding from pooled data". Proc. 35th Conference on Learning Theory (COLT 2022) (about to appear).

2021

D. Achlioptas, A. Coja-Oghlan, **M. Hahn-Klimroth**, J. Lee, N. Müller, M. Penschuck, G. Zhou: „The number of satisfying assignments of random 2-SAT formulas “. Random Structures & Algorithms (2021), pp. 1-39.

A. Coja-Oghlan, **M. Hahn-Klimroth**: ”The cut metric for probability distributions”. SIAM Journal on Discrete Mathematics 35 (2021), pp. 1096–1135.

A. Coja-Oghlan, **M. Hahn-Klimroth**, P. Loick, N. Müller, K. Panagiotou, M. Pasch: “Inference and mutual information on random factor graphs.” Proc. 38th International Symposium on Theoretical Aspects of Computer Science (STACS 2021), pp. 24:1--24:15.

M. Hahn-Klimroth, T. Kapetanopoulos, J. Gübert, PW. Dierkes: "Deep learning-based pose estimation for African ungulates in zoos." Ecology and Evolution 11 (2021), pp. 6015–6032.

M. Hahn-Klimroth, P. Loick, S. Kim-Wanner, E. Seifried, H. Bonig: "Generation and validation of a formula to calculate hemoglobin loss on a cohort of healthy adults subjected to controlled blood loss." Journal of Translational Medicine, 19 (1) (2021)

M. Hahn-Klimroth, G. S. Maesaka, Y. Mogge, S. Mohr, O. Parczyk: "Random perturbation of sparse graphs." Electionic Journal of Combinatorics 28(2) (2021), #P2.26.

2020

A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth**, P. Loick: "Information-Theoretic and Algorithmic Thresholds for Group Testing". IEEE Transactions on Information Theory 66(12) (2020), pp. 7911–7928.

A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth**, P. Loick: "Optimal group testing". Combinatorics, Probability and Computing, 30(6) (2020), pp. 811-848.

A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth** and P. Loick: "Optimal Group Testing". Proc 33rd Conference on Learning Theory (COLT 2020), pp. 1374–1388.

2019

A. Coja-Oghlan, O. Gebhard, **M. Hahn-Klimroth**, P. Loick: "Information-Theoretic and Algorithmic Thresholds for Group Testing". Proc. 46th International Colloquium on Automata, Languages, and Programming (ICALP 2019), pp. 43:1–43:14.

Talks

"The quantitative group testing Problem."
Workshop: Graphs, Groups, Stochastic Processes, Erdős Center of the Alfréd Rényi Institute of Mathematics, Budapest, Hungary

"Almost optimal efficient decoding from sparse pooled data."
Random Graphs and Statistical Inference: New Methods and Applications, online workshop hosted by Banff International Research Station (BIRS), Canada

"Optimal group testing."
Minisymposium on extremal and probabilistic combinatorics at the 2020 annual meeting of the German Mathematical Society, online workshop hosted by TU Chemnitz, Germany

"Information theoretic and algorithmic aspects of binary and quantitative group testing in the sublinear regime."
Oberseminar Diskrete Mathematik und Algebra, TU Ilmenau, Germany

"Information theoretic and algorithmic bounds for group testing."
46th International Colloquium on Automata, Languages and Programming (ICALP 2019), Patras, Greece

"The cut metric for distributions."
The 19th International Conference on Random Structures and Algorithms (RS&A 2019), Zurich, Switzerland