Seminar Hora Informaticae   Institute of Computer Science, Prague

Tuesday, February 20, 2024, 14.00 – 15.30 (2 – 3:30 PM) CET

Meeting Room 318, Address: Pod Vodárenskou věží 2, Prague 8

ZOOM Meeting ID: 954 7823 4977 ,   Passcode: 712564

ZOOM: https://cesnet.zoom.us/j/95478234977?pwd=dXoyekFHbDJ0MkNrTjVVS3F2STZqUT09

Jan Vybíral, Department of Mathematics, FNSPE, CTU:

Dispersion of a point set - lower and upper bounds

Given a point cloud in the unit cube of a d-dimensional Euclidean space, its dispersion is defined as the volume of the largest axis-parallel box, which does not intersect this cloud. For a fixed integer n, we try to minimize the dispersion among the point sets of cardinality n. We review recent upper and lower bounds of this quantity, which turned to be connected to discrete geometry, probability, combinatorics, and analysis. Especially, we discuss a new lower bound obtained by a reduction to a certain combinatorial problem solved previously by Ruszinkó, Alon, and Asodi.

References:

1) M. Ullrich, J. Vybíral, An upper bound on the minimal dispersion, J. Compl. 45 (2018), 120-126

2) M. Trodler, J. Volec, J. Vybíral, A tight lower bound on the minimal dispersion, submitted

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Jan Vybíral (https://people.fjfi.cvut.cz/vybirja2/cv.pdf) is affiliated with the Department of Mathematics, Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University in Prague. His main research interests are high-dimensional approximation theory, random matrix theory, information-based complexity, and computational mathematics.

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HORA INFORMATICAE (meaning: TIME FOR INFORMATICS) is a broad-spectrum scientific seminar devoted to all core areas of computer science and its interdisciplinary interfaces with other sciences and applied domains. Original contributions addressing classical and emerging topics are welcome. Founded by Jiří Wiedermann, the seminar is running since 1994 at the Institute of Computer Science of the Czech Academy of Sciences in Prague.

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