

Mean Square L_2 -Discrepancy of Randomized Digital Nets in Prime Base

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The talk is based on results of joint work with Friedrich Pillichshammer and Josef Dick. We study the mean square weighted L_2 -discrepancy of random digital (t, m, s) -nets in prime base p . We consider as randomization method a digital shift of depth m . After giving a formula for the mean square weighted L_2 -discrepancy we prove an upper bound on this discrepancy. Subsequently we deduce that there exist digital nets in prime base whose mean square weighted L_2 -discrepancy is best possible in the order of magnitude in N , the number of points considered. We study how the constant of the leading term depends on the choice of the prime base p .

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