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Dominating mixed smoothness, numerical integration, discrepancy

Discrepancy measures the deviation of sets of points from uniformity, preferably in n-cubes. It comes from number theory (van der Corput, K. Roth). It is closely related to the problem how good integrals (over cubes) can be evaluated at finitely many points in dependence on the quality of the underlying functions. We describe an approach if these functions belong to some spaces of Sobolev-Besov type with dominating mixed smoothness.