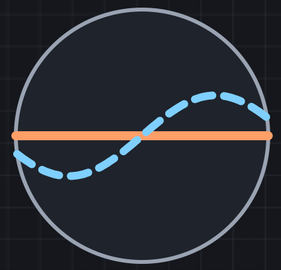
Pi & Planck

NEW DISCOVERY

The KLS Conjecture

Is a flat cut always nearly the cheapest? Three proofs were posted in 2026; verification is ongoing.

THE QUESTION



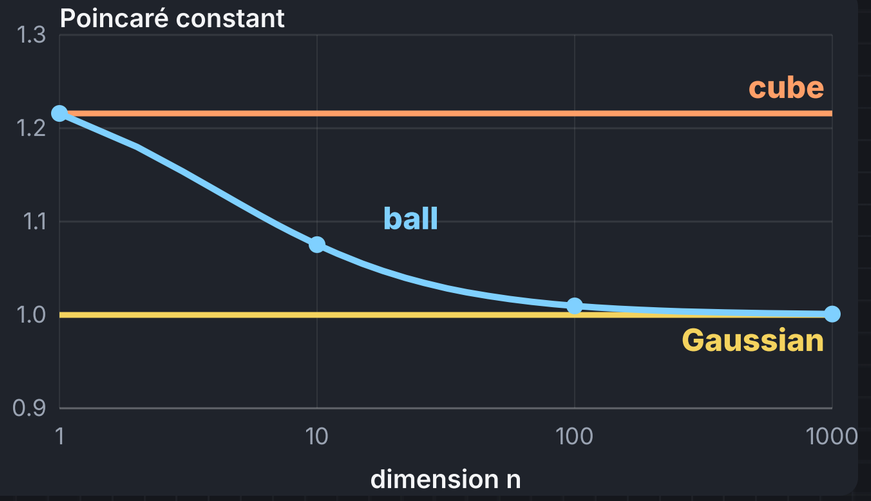
flat cut: 2.00 wavy cut: 2.26

$$\mathrm{Var}(f) \le C \cdot E[|\nabla f|^2]$$

C does not depend on the dimension n.

Isotropic: centred, unit spread in every direction.

THE EXAMPLES STAY BOUNDED



cube $C_P = \frac{12}{\pi^2} \approx 1.216$ ball n=1000: 1.0010

THE BOUND, 1995 TO 2026

1995	KLS	$\sqrt{n}$
2011	Bobkov; Guédon–Milman	$n^{5/12}$
2013	Eldan	$n^{1/3}\sqrt{\log n}$
2017/24	Lee–Vempala	$n^{1/4}$
2021	Chen	$e^{C\sqrt{\log n \log\log n}}$
2022	Klartag–Lehec	$\log^5 n$
2022	Jambulapati–Lee–Vempala	$\log^{3.2226} n$
2023	Klartag	$\sqrt{\log n}$
2026	Letwin	$(\log n)^{1/4}$
2026	3 preprints (claimed)	$O(1)$

1995 Kannan, Lovász and Simonovits pose the question in Discrete & Computational Geometry.

3 preprints in 2026 claim a proof: Song–Zhang, Bizeul et al., Balasubramanian–Kasiviswanathan.

Checking Journal refereeing is still to come. Verification is ongoing.

Sources: Kannan, Lovász, Simonovits, *Discrete Comput. Geom.* 13:541 (1995) · Song & Zhang, arXiv:2610.01447 · Bizeul, Klartag & Lehec, arXiv:2610.05474 · Balasubramanian & Kasiviswanathan, arXiv:2610.07728 · bound history: Song & Zhang, Table 1

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