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Rates of Convergence for the Simple Random Walk Green's Function

For a given domain $D \subsetneq \mathbb{C}$, one would expect the simple random walk Green's function on $D \cap \frac{1}{n}\mathbb{Z}^2$ to converge at a rate that depends on the regularity of the domain. In the particular case $D_\alpha = \mathbb{D} \setminus \{re^{i\theta} \in \mathbb{C} : r \geq 0, |\theta| \leq \alpha/2\}$, where $\mathbb{D}$ is the unit disk centered at the origin, we find upper bounds for the rate of convergence that suggest that this is indeed the case.