# SSD References

The following is not a complete list of the SSD literature. I simply wanted to provide a list of papers mentioned during my talk.

### References


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Bulutoglu and Ryan (2008) Theorem 1 improved the E($s^2$) lower bounds for odd $N$ SSDs derived by Nguyen and Cheng (2006).

**Theorem 1** *Let $m$ be a positive integer such that $m > N-1$. Then there is a unique $q$ such that $-2N \le m - qN < 2N$ and $m + q \equiv 2 \pmod 4$. Let*

$$\begin{aligned} g(q) &:= (m+q)^2N - q^2N^2 - mN^2 - 2qm, \\ K(p) &:= 8p^2 - 8Np + 4N^2 - 4N, \\ F(p) &:= 8p^2 + 4N^2 - 8Np - 4N + \alpha(p), \\ \alpha(p) &:= 4\max\{|-m(N-1) + qN(N-1)| - 4p^2 - 2N^2 + 4Np + 2N, 0\}, \text{ and} \end{aligned}$$

*$F(p^*)$ be the minimum value of $F(p)$ for $p \in \{0, 1, \cdots, (N+1)/2\}$. Then*

$$E(s^2) \ge \begin{cases} \dfrac{16\left\lceil \frac{g(q)+K((N\pm1)/2)-m(m-1)}{16} \right\rceil + m(m-1)}{m(m-1)}, & \text{when } |m-qN| < N, \\ \dfrac{16\left\lceil \frac{g(q)+F(p^*)-m(m-1)}{16} \right\rceil + m(m-1)}{m(m-1)}, & \text{otherwise.} \end{cases}$$

**Remark 2** *The greatest integer function $\lceil \cdot \rceil$ and the 16s are in the bounds due to the discreteness of this optimization problem. In particular, when $N$ is odd, $m(m-1)E(s^2) - m(m-1)$ is a multiple of 16.*