Comparing optimal 1 shot and 2 shot states for N=4, $\Delta=\frac{\pi}{2}$

$|r_k|$

$|0, 4\rangle$ $|1, 3\rangle$ $|2, 2\rangle$ $|3, 1\rangle$ $|4, 0\rangle$
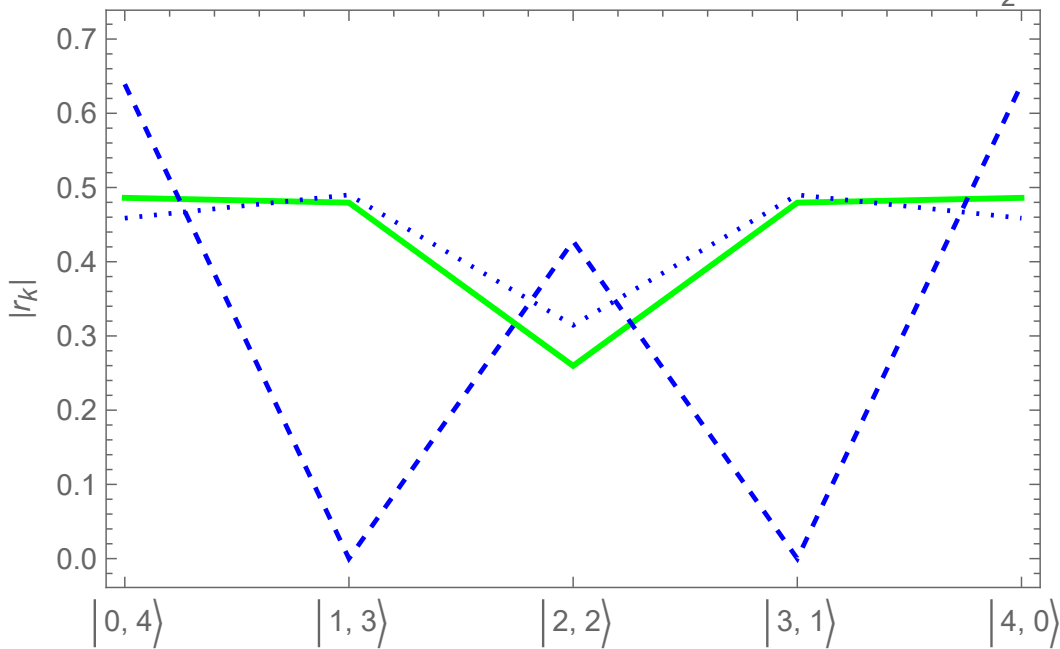
—— 1 Shot case   - - - - 2 Shot case: Shot 1   ········· 2 Shot case: Shot 2