Timing Comparison: All Multigrid Operations (Log-Log) --- Residual - CPU Residual - GPU (16^2 threads) 10^{3} -Residual - GPU (32^2 threads) --- Jacobi - CPU (100 iters) → Jacobi - GPU (100 iters) (16² threads) → Jacobi - GPU (100 iters) (32² threads) --- Restriction - CPU Restriction - GPU (16^2 threads) Restriction - GPU (32^2 threads) --- Prolongator - CPU 10^1 → Prolongator - GPU (16^2 threads) → Prolongator - GPU (32^2 threads) - O(N) -- O(N²) Time (seconds) 10^{-1} 10^{-3} 10^{-5} 10^{2} 10^{3} Problem Size (N)