i) upper bounds of the power using the analytical results derived in previous section, and

ii) Monte-Carlo simulation curves representing the true average minimum power.

The curves show that upper bound results are reasonably close to the true powers.

For all the simulation setups, optimal user selection and its average minimum power have been determined through exhaustive search over all possible user combinations. These curves are represented as "OPT" in the following figures. Furthermore for the case of two selected users, the lower bound of the average minimum power has been plotted using Theorem 9.

For all the scenarios studied, SUS simulation curves fully overlap the OPT curves highlighting the fact that SUS is indeed the greedy selection algorithm for power minimization objective as indicated in the discussion following Lemma 1.

A. The case of $K_s = 2$ Selected Users

![Figure 1](image_url)

Fig. 1. Avg. Min. Transmit Power vs. $M$ for $K = 10$, $K_s = 2$, $\gamma = 10$ dB, $\sigma^2 = 0.1$. The curves show that SUS fully overlaps the OPT curve. NUS also performs well and moves close to OPT curve with increasing number of transmit antennas.

The plot of average minimum transmit power required to attain specific SINR targets $\gamma$ versus the number of antennas at the BS appears in Fig. 1 for the considered user selection algorithms. A minor gap is visible between the SUS simulation curve (true SUS power) and the SUS analytical upper bound as the orthogonalized norm distributions were bounded in the proof (see Appendix IV for details). We remark that SUS performs better than other user selection schemes but with the increase in the number of transmit antennas, NUS also performs very well. The similar