**Abstract**

The purpose of this paper is twofold. First, we provide an optimal $\Omega(\sqrt{n})$ bits lower bound for any two-way protocol for the Vector in Subspace Communication Problem which is of bounded total rank. This result complements Raz's $O(\sqrt{n})$ protocol, which has a simple variant of bounded total rank. Second, we present a plausible mathematical conjecture on a measure concentration phenomenon that implies an $\Omega(\sqrt{n})$ lower bound for a general protocol. We prove the conjecture for the subclass of sets that depend only on $O(\sqrt{n})$ directions.