

Abstract

In this talk, we consider the problem of capacity for the joint MDS coded PIR. Specifically, an upper bound on the capacity is built for the cases of $K=Mt$ and $K=Mt+1$, respectively. And then, we construct three classes of the joint MDS coded PIR schemes with a higher retrieval rate for $K=Mt$ and $K=Mt+1$. Particularly, the scheme for $K=Mt$, $N \leq K+t$ achieves the upper bound, hence the capacity in this case is $1-(M-1)K/NM$. Compared with the separate MDS-PIR capacity, our schemes can achieve an improvement of up to 26% in the retrieval rate, with a guaranteed improvement of at least 15% when $M \geq 4$. This work was jointed with Weijun Fang and Lirong Shi.