1030-94-175 **Sunghyu Han\*** (`sunghyu@yonsei.ac.kr`), Department of Mathematics, University of Louisville, 328 Natural Sciences Building, Louisville, KY 40292, and **Jon-Lark Kim** (`jl.kim@louisville.edu`), Department of Mathematics, University of Louisville, 328 Natural Sciences Building, Louisville, KY 40292. *Upper Bounds for the length of s-Extremal Codes over $\mathbb{F}_2$, $\mathbb{F}_4$, and $\mathbb{F}_2 + u\mathbb{F}_2$.*

Our purpose is to find an upper bound for the length of $s$-extremal codes over $\mathbb{F}_2$ (resp. $\mathbb{F}_4$) when $d \equiv 2 \pmod{4}$ (resp. $d$ odd). This question is left open in [E. P. Bautista et al., $s$-extremal additive $\mathbb{F}_4$ codes, Advances in Mathematics of Communications, **1**, pp. 111–130, 2007] and [P. Gaborit, A bound for certain $s$-extremal lattices and codes, preprint]. More precisely, we show that there is no $s$-extremal binary code of length $n \geq 21d - 82$ if $d > 6$ and $d \equiv 2 \pmod{4}$. Similarly we show that there is no $s$-extremal additive $\mathbb{F}_4$ code of length $n \geq 13d - 26$ if $d > 1$ and $d$ is odd. We also define $s$-extremal self-dual codes over $\mathbb{F}_2 + u\mathbb{F}_2$ and derive an upper bound for the length of an $s$-extremal self-dual code over $\mathbb{F}_2 + u\mathbb{F}_2$ using the information on binary $s$-extremal codes. (Received August 01, 2007)