Weight hierarchies of linear codes of dimension 3*

Wende Chen
Institute of Systems Science, Academia Sinica
and State Lab. of Information Security,
Graduate School of Academia Sinica,
Beijing 100080, China

Torleiv Kløve
Department of Informatics,
University of Bergen
HIB, N-5020 Bergen, Norway

Submitted for publication

Abstract: The weight hierarchy of a linear $[n, k; q]$ code C over $GF(q)$ is the sequence $(d_1, d_2, \ldots, d_k)$ where d_r is the smallest support of an r–dimensional subcode of C. The weight hierarchies of $[n, 3; q]$ codes are studied. In particular, for $q \leq 5$ the possible weight hierarchies of $[n, 3; q]$ codes are determined.

AMS Subject Classification: Primary 94B75; secondary 94B05, 05B25.

Key words and phrases: Weight hierarchy, support weight, q-ary code, chain condition, difference sequence.

*The research was supported by The Norwegian Research Council.