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On the Size of Optimal Strongly Conflict-avoiding Codes for 3, 4 and 5 Active Users

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Strongly conflict-avoiding codes were first introduced in 2011 by Zhang, Shum and Wong [1]. They are used in the slot-asynchronous multiple-access collision channels without feedback to guarantee that each active user can send successfully at least one package within a fixed period of time. The weight of the codewords in a strongly conflict-avoiding code corresponds to the maximum number of users who are active at the same time and the number of codewords (size of the code) is the number of potential users of the channel. That is why codes with maximum cardinality (optimal codes) for given parameters are of interest. In this paper we determine some previously unknown values of the size of optimal strongly conflict avoiding codes of weights 3, 4 and 5 and given small lengths.

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References

[1] Y. Zhang, K. W. Shum, and W. S. Wong, Strongly conflict-avoiding codes, *SIAM J. of Discr. Math.*, vol. 25, issue 3, pp. 1035-1053, 2011.