Second International Conference "Mathematics Days in Sofia"
July 10–14, 2017, Sofia, Bulgaria

On m-specially Resolvable BIB Designs and q-ary Constant Weight Codes

Leonid A. Bassalygo, Vladimir S. Lebedev, Victor A. Zinoviev

Kharkevich Institute for Information Transmission Problems
Russian Academy of Sciences
Bolshoi Karetnyi pereulok 19, GSP-4, Moscow, 127994, Russian Federation
bass@iitp.ru, lebedev37@mail.ru, zinov@iitp.ru

We introduce m-specially resolvable BIB designs (SRBm) which generalize known resolvable BIB designs. The co-existence theorem between SRBm designs and some class of q-ary constant weight codes, satisfying the Johnson upper bound, is established. Several constructions of such designs and codes are developed based on Steiner systems and super-simple t-designs.

Acknowledgements. The research was carried out at the IITP RAS at the expense of the Russian fund of fundamental researches (15-01-08051).