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A new class of optimal optical orthogonal codes. (Chinese. English summary) Zbl 07448796

Summary: A two-dimensional optical orthogonal code (2-D OOC) is a family of binary matrices with good auto- and cross-correlation properties. Let \( \Phi(u \times v, k, \lambda_a, \lambda_c) \) denote the largest possible size among all 2-D \((u \times v, k, \lambda_a, \lambda_c)\)-OOCs. A 2-D \((u \times v, k, \lambda_a, \lambda_c)\)-OOC with \( \Phi(u \times v, k, \lambda_a, \lambda_c) \) codewords is said to be optimal. In this paper, we research into optimal 2-D \((u \times v, 5, 3, 4)\)-OOCs and show the exact value of \( \Phi(u \times v, 5, 3, 4) \) for any positive integers \( u \) and \( v \).

MSC:
94B25 Combinatorial codes
05B30 Other designs, configurations

Keywords:
optical orthogonal codes; optimal; orbit