

New Approach of Double Weight Code Family Detection Using Reduced Set of Fiber Bragg Gratings

Abstract:

To increase the number of users in the double weight (DW) code family, a mapping technique is applied. This mapping technique increases the number of users but at a cost of unfixed cross-correlation property. The complementary detection technique used in spectral amplitude coding (SAC) systems, can completely cancel the multiple access interference (MAI) only if there is a fixed cross-correlation between different code sequences. In this paper we study the performance of the DW code family a alternative detection scheme that can support balance detection for unfixed cross-correlation property. Also a mathematical approach is proposed to reduce the number of fiber Bragg gratings and minimize the phase induced intensity noise.