

Focus and Contrast

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Finding binary sequences $(a_0, a_1, \dots, a_{n-1})$ of length n which has a large peak energy at the desired focal frequency h while the remaining (off-peak) energies are small for all k not equal to h , has been a very challenging topic in area of optics, particularly spectroscopy, and the mathematics of sequences and codes. In this talk, we will give constructions on several families of binary sequences with large focal and contrast ratios, with both theoretical proofs and numerical analysis results represented.