

On the Cross-Correlation Distributions Between p-ary M-Sequences and their Decimated Sequences

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Abstract

For the past decades, maximal linear recursive sequences (m-sequences) have been studied by many researchers. M-sequences have ideal autocorrelation property, which is useful in various wireless communication systems. Some m-sequences have low cross-correlation values which is essential property for extensive application of code division multiple access (CDMA) of spread spectrum communication systems for multiple users. What is involved in study of m-sequences is to evaluate explicitly the values of the cross-correlation function between p-ary m-sequences and their decimated m-sequences by the decimation factor d . Generally, it is difficult to evaluate the distributions of cross-correlation values. However, when the decimation value d takes on some special values, the explicit evaluation of the cross-correlation function is possible. In this paper, we review the cross-correlation distributions of p-ary msequences and their decimated m-sequences for various d .

Speaker's biography



Jong-Seon No (SMIEEE) received the B.S. and M.S.E.E. degrees in electronics engineering from Seoul National University, Seoul, Korea, in 1981 and 1984, respectively, and the Ph.D. degree in electrical engineering from the University of Southern California, Los Angeles, in 1988. He was a Senior MTS with Hughes Network Systems, Germantown, MD, from February 1988 to July 1990. He was an Associate Professor in the Department of Electronic Engineering, Konkuk University, Seoul, from September 1990 to July 1999. He joined the faculty of the Department of Electrical Engineering and Computer Science, Seoul National University, in August 1999, where he is currently a Professor. His research interests include error-correcting codes, sequences, cryptography, space-time codes, LDPC codes, and wireless communication systems. From 1996 to 2008, he served as a Founding Chair of Seoul Chapter, IEEE Information Theory Society. He was a recipient of Minister Award from Ministry of Information and Communications in Korea, 2002. He was a General Chair for Sequence and Their Applications 2004 (SETA2004) in Seoul, Korea. He also served as a General Co-Chair for International Symposium on Information Theory and Its Applications 2006 (ISITA 2006) and International Symposium on Information Theory 2009 (ISIT 2009) in Seoul, Korea. He was a recipient of IEEE Information Theory Society Chapter of the Year Award in 2007. He received the Best Paper Award from Joint Conference on Communication and Information (JCCI) in 2004, 2010, respectively. For more details, please visit <http://ccl.snu.ac.kr/main/>.