Abstract

Sunzi theorem is also called Chinese remainder theorem (CRT). It is to determine a large integer from its multiple remainders, which is well-known not robust. In this talk, we first talk about its application in frequency estimation in signal processing. We then introduce a generalized CRT that determines multiple integers from multiple remainder sets. Then, we introduce a robust CRT and a robust phase unwrapping. We finally introduce several applications of robust CRT and robust phase unwrapping in SAR imaging of moving targets.

Biography of Speaker

Xiang-Gen Xia received his B.S. degree in mathematics from Nanjing Normal University, Nanjing, China, and his M.S. degree in mathematics from Nankai University, Tianjin, China, and his Ph.D. degree in Electrical Engineering from the University of Southern California, Los Angeles, in 1983, 1986, and 1992, respectively. He was a Senior/Research Staff Member at Hughes Research Laboratories, Malibu, California, during 1995-1996. In September 1996, he joined the Department of Electrical and Computer Engineering, University of Delaware, Newark, Delaware, where he is the Charles Black Evans Professor. He was a Visiting Professor at the Chinese University of Hong Kong during 2002-2003, where he is an Adjunct Professor. Dr. Xia is a Kumar Chair Group Professor (guest) at Tsinghua University, Chang Jiang Chair Professor (visiting) at Xidian University, and a Chair Professor (visiting) with WCU Program at Chonbuk National University, South Korea. His current research interests include space-time coding, MIMO and OFDM systems, digital signal processing, and SAR and ISAR imaging. Dr. Xia has over 200 refereed journal articles published and accepted, and 7 U.S. patents awarded and is the author of the book Modulated Coding for Intersymbol Interference Channels (New York, Marcel Dekker, 2000). Dr. Xia received the National Science Foundation (NSF) Faculty Early Career Development (CAREER) Program Award in 1997, the Office of Naval Research (ONR) Young Investigator Award in 1998, and the Outstanding Overseas Young Investigator Award from the National Nature Science Foundation of China in 2001. He also received the Outstanding Junior Faculty Award of the