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08544. *The Cross Number of Zero-sum Free Sequences in Finite Abelian Groups.*

We study the maximal cross number $k(G)$ of a zero-sum free sequence over a finite abelian group G , defined by Krause and Zahlten. In the first part of this paper, we extend a previous result by X. He to prove that the value of $k(G)$ conjectured by Krause and Zahlten hold for $G \oplus C_{p^a} \oplus C_{p^b}$ when it holds for G . In the second part, we describe a new method for proving that the conjectured value of $k(G)$ hold for abelian groups of the form $H_p \oplus C_{q^m}$ (where H_p is any finite abelian p -group) and $C_p \oplus C_q \oplus C_r$ for any distinct primes p, q, r . (Received September 16, 2014)