1035-05-871    **Omar A. AbuGhneim\*** (`o.abughneim@ju.edu.jo`), Department of Mathematics, Faculty of Science, Jordan University, Amman, 11942, Jordan. *On* $(64, 28, 12)$ *Difference Sets.* Preliminary report.

Difference sets with parameters $(64, 28, 12)$ are a special case of both McFarland and Menon-Hadamard difference sets. The existence problem of $(64, 28, 12)$ difference sets in all groups of order 64 was solved in the early 90's. In this work we try to construct *all* the $(64, 28, 12)$ difference sets in any group of order 64. We use the software GAP to find images of $(64, 28, 12)$ difference sets in various factor groups. We combine these various images to construct *all* $(64, 28, 12)$ difference sets in some groups of order 64. (Received September 17, 2007)