

1124-13-55

**Thomas G Lucas\***, Department of Mathematics & Statistics, University of North Carolina  
Charlotte, Charlotte, NC 28223. *Weakly Additively Regular Rings and Special Families of Prime  
Ideals*. Preliminary report.

A commutative ring  $R$  is weakly additively regular if for each pair of elements  $f, g \in R$  with  $f$  regular, there is a pair of elements  $s, t \in R$  such that  $gs + ft$  is regular and  $sR + fR = R$ . Also  $R$  is a Marot ring if each regular ideal can be generated by a set of regular elements. Each weakly additively regular ring is Marot, but a Marot ring need not be weakly additively regular. Both of these properties can be defined with regard to the set of prime ideals that contain only zero divisors. Thus we introduce weakly additively regular families and Marot families of primes. A nonempty set of (nonzero) primes  $\mathcal{P} = \{P_\alpha\}_{\alpha \in \mathcal{A}}$  is a weakly additively regular family if for  $f, g \in R$  with  $f \in R \setminus \bigcup P_\alpha$ , there is a pair of elements  $s, t \in R$  such that  $gs + ft \in R \setminus \bigcup P_\alpha$  and  $sR + fR = R$ . Also  $\mathcal{P}$  is Marot family if each ideal  $I$  that is not contained in  $\bigcup P_\alpha$  can be generated by  $I \cap S$  where  $S = R \setminus \bigcup P_\alpha$ . If  $\mathcal{P}$  is a weakly additively regular family and there are only finitely many maximal ideals that are not contained in  $\bigcup P_\alpha$ , then each invertible ideal that is not contained in  $\bigcup P_\alpha$  is principal. (Received August 22, 2016)