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**Jesse Gerald Smith\***, Department of Mathematics, The University of Tennessee, 1403 Circle Drive, Knoxville, TN 37996-1320. *Classification of Finite Planar Nontrivial Ideal-based Zero-divisor Graphs for Commutative Rings*. Preliminary report.

Let  $R$  be a commutative ring with nonzero identity and  $I$  a proper ideal of  $R$ . Define the *ideal-based zero-divisor graph* of  $R$  with respect to the ideal  $I$ , denoted  $\Gamma_I(R)$ , to be the graph on vertices  $\{x \in R \setminus I \mid xy \in I \text{ for some } y \in R \setminus I\}$ , where distinct vertices  $x$  and  $y$  are adjacent if and only if  $xy \in I$ . We say that  $\Gamma_I(R)$  is nontrivial if it is nonempty and distinct from the zero-divisor graph  $\Gamma(R)$  (i.e.,  $I$  is not prime and  $I \neq \{0\}$ ). We will give a classification of all commutative rings that admit a finite planar nontrivial  $\Gamma_I(R)$ . (Received January 23, 2014)