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On the nontrivial solvability of systems of homogeneous linear equations over \mathbb{Z} in ZFC

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Abstract: Motivated by the paper by H. Herrlich, E. Tachtsis (2017) we investigate in ZFC the following compactness question: for which uncountable cardinals κ , an arbitrary nonempty system S of homogeneous \mathbb{Z} -linear equations is nontrivially solvable in \mathbb{Z} provided that each of its subsystems of cardinality less than κ is nontrivially solvable in \mathbb{Z} ?

Keywords: homogeneous \mathbb{Z} -linear equation; κ -free group; $\mathcal{L}_{\omega_1\omega}$ -compact cardinal

AMS Subject Classification: 08A45, 13C10, 20K30, 03E35, 03E55

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