

Logic Seminar

Some Computability-theoretic Aspects of Partition Regularity over Algebraic Structures

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Abstract: An inhomogeneous system of linear equations over a ring R is partition regular if for any finite coloring of R , the system has a monochromatic solution. In 1933, Rado showed that an inhomogeneous system is partition regular over \mathbb{Z} if and only if it has a constant solution. Following a similar approach, Byszewski and Krawczyk showed that the result holds over any integral domain. In 2020, Leader and Russell generalized this over any commutative ring R , with a more direct proof than what was previously used. We analyze some of these combinatorial results from a computability-theoretic point of view, starting with a theorem by Straus used directly or as a motivation to many of the previous results on the subject.

Tuesday, October 1 at 4:00 PM in 636 SEO