Otto-von-Guericke-Universität Magdeburg
Fakultät für Mathematik

Auf Einladung des Institutes für Algebra und Geometrie spricht

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über das Thema

Relative homological algebra for upper set modules

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Zu diesem Vortrag laden wir alle Interessierten herzlich ein.

Prof. Dr. Thomas Kahle

Abstract: In the last decade, a far-reaching interest in homological algebra relative to several classes of modules arose due to their applications in topological data analysis and persistence theory. We consider the class of upper set modules, which are direct sums of monomial ideals, and which are used as a substitute for projective modules due to their compelling algebraic and combinatorial properties. After reviewing recent approaches of conducting homological algebra relative to upper set modules, we introduce a novel approach by identifying upper set modules with images of free modules under a certain exact functor. Then, we use this approach to investigate the homological properties of the involved rings under sufficient lattice assumptions. Further, we introduce a version of relative Ext functors using our formalism, and show that they are well-defined under lattice assumptions.