



(Invited Talk)

## Positivity and Asymptotic Behavior of Operator Semigroups

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### Abstract

Positive operators and semigroups play an important role in several branches of modern analysis, including approximation theory, ergodic theory, evolution equations, and dynamical systems. In many situations, the long-term dynamics of operator semigroups are strongly influenced by the underlying structure of the spaces on which they act, making positivity an important tool in asymptotic analysis.

This talk focuses on operator semigroups on ordered Banach spaces and Banach lattices, where order-theoretic methods provide a flexible framework extending beyond classical norm-topological approaches. We discuss how the underlying order structure influences continuity, stability, and convergence phenomena associated with operator dynamics.

Special emphasis will be placed on recent developments concerning semigroup methods in ordered settings, including extensions of classical results and new perspectives arising from generalized approaches to continuity and convergence.

The aim of the talk is to illustrate how ordered structures shape the asymptotic behavior of operator semigroups and to emphasize the role of positivity in extending semigroup-theoretic methods beyond classical settings.

**Keywords:** Positive operators, operator semigroups, asymptotic behavior, ordered vector spaces, Banach lattices.