Special Issue

Advanced Research in Mathematical Physics Models with Painlevé Property and Affine Weyl Group Symmetry

Message from the Guest Editor

We are pleased to announce a call for papers for a Special Issue dedicated to advanced research in mathematical physics models with the Painlevé property and affine Weyl group symmetry. Infinite-dimensional Lie algebras play a key role in many developments in integrable models that give rise to Painlevé equations in their self-similarity limits. These equations are invariant under symmetry groups of the Bäcklund transformations that form the affine Weyl groups. This connection relates the Painlevé property to the concept of integrability for non-linear differential equations. This Special Issue seeks to exploit a link between infinite-dimensional Lie algebras and integrable systems and affine Weyl groups and Painlevé equations to form a unifying perspective that binds together a wide array of the latest developments on a wide variety of topics. We welcome submissions from researchers in mathematics, physics and related fields who are active in the study of integrable models and Painlevé equations in mathematical physics settings and interested in advances achieved through applications of symmetry considerations.

Guest Editor

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Deadline for manuscript submissions

31 December 2025

About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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