Special Issue

Noncommutative Geometry and Number Theory

Message from the Guest Editor

There is a growing evidence that noncommutative geometry may have a lasting impact on the unsolved classical problems of number theory; see the work of Bost and Connes on the Riemann Hypothesis, Cuntz's generalization of the Bost–Connes systems, and Manin's real multiplication program. The goal of the Special Issue is to advance in this direction by collecting articles related to the following concrete problems: (i) the Manin's approach to Hilbert's twelfth problem ("Kronecker's Jugendtraum") about the explicit construction of generators of the abelian extensions of the real quadratic fields; (ii) a revision of the Weil's conjectures using the trace cohomology coming from the K -theory of operator algebras; (iii) and to recast and understand the Langlands conjectures in terms of the operator algebras. The methods are an interplay between the operator algebras (Serre C*-algebras and non-commutative tori), algebraic geometry (abelian varieties and complex multiplication), and number theory (rational elliptic curves).

Guest Editor

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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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