Categories of quadratic data and monoidal structures

Yu. I Manin
Max Planck Institute for Mathematics
Bonn

Abstract

During several last milleniums (or centuries ...) of development of modern geometry and geometric models of theoretical physics, it was gradually understood that geometry appears on the scene in two different guises: as space (or space–time) domains, and as their symmetries. The idea of symmetry has mathematically crystallised relatively late: arguably, simultaneously with Galois's discovery of the role of symmetry in the theory of algebraic equations. Revolutions of Relativity Theory and Quantum Physics brought with them comparatively fast understanding that space–time models and their symmetries are related by a kind of 'duality'. This short talk is an attempt to introduce listeners to the respective models and their dualities in their most abstruse contemporary incarnations ... as is usual for algebraists. It is based upon the paper with B. Vallette and my earlier Montreal lecture notes.