

# Initial-boundary value problem for stochastic transport equations.

## **Abstract**

This paper is concerned with the initial-boundary value problem for stochastic transport equations in bounded domains. For a given stochastic perturbation of the drift vector field, we prove existence and uniqueness of weak solutions with non-regular coefficients. The existence result relies strongly on the passage from the Stratonovich formulation into Ito's one, which is a completely new result for bounded domains. The strong stochastic trace theorem established in this paper is also essential to prove the existence. Moreover, the uniqueness of weak solutions is obtained under suitable conditions, which allow vacuum.