

**Verification Theorems**  
**for stochastic optimal control problems and applications.**

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**Abstract:**

We will present recent results on Hamilton-Jacobi-Bellman equations associated with optimal control of stochastic Navier-Stokes equations. In particular we will discuss the method of half-relaxed limits for such equations and its applications to establish large deviation principle for solutions of stochastic Navier-Stokes equations with small noise intensities.