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Autore	Flandoli Franco
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Nota di contenuto	Chapter -- 1 The Navier–Stokes Equations with Deterministic Rough Force, Chapter -- 2 Stochastic Navier–Stokes Equations and State–Dependent Noise, Chapter -- 3 Transport Noise in the Heat Equation, Chapter -- 4 Transport Noise in the Navier–Stokes Equations, Chapter -- 5 From Small–Scale Turbulence to Eddy Viscosity and Dissipation.
Sommario/riassunto	This book is devoted to stochastic Navier–Stokes equations and more generally to stochasticity in fluid mechanics. The two opening chapters describe basic material about the existence and uniqueness of solutions: first in the case of additive noise treated pathwise and then in the case of state-dependent noise. The main mathematical techniques of these two chapters are known and given in detail for using the book as a reference for advanced courses. By contrast, the third and fourth chapters describe new material that has been developed in very recent years or in works now in preparation. The new material deals with transport-type noise, its origin, and its consequences on dissipation and well-posedness properties. Finally, the last chapter is devoted to the physical intuition behind the stochastic modeling presented in the book, giving great attention to the question of the origin of noise in connection with small-scale turbulence, its mathematical form, and its consequences on large-scale properties of a fluid.