1. Record Nr. UNINA9910146307603321 Autore Woyczynski W. A (Wojbor Andrzej), <1943-> Titolo Burgers-KPZ turbulence : Gottingen lectures / / Wojbor A. Woyczynski Pubbl/distr/stampa Berlin, Germany;; New York, New York:,: Springer-Verlag,, [1998] ©1998 **ISBN** 3-540-49480-4 Edizione [1st ed. 1998.] Descrizione fisica 1 online resource (XII, 328 p.) Collana Lecture Notes in Mathematics, , 0075-8434; ; 1700 Classificazione 60H15 76L05 35Q53 Disciplina 510 Soggetti Turbulence - Mathematical models **Burgers** equation Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Bibliographic Level Mode of Issuance: Monograph Note generali Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Shock waves and the large scale structure (LSS) of the universe --Hydrodynamic limits, nonlinear diffusions, and propagation of chaos --Hopf-Cole formula and its asymptotic analysis -- Statistical description, parabolic approximation -- Hyperbolic approximation and inviscid limit -- Forced Burgers turbulence -- Passive tracer transport in Burgers' and related flows -- Fractal Burgers-KPZ models. These lecture notes are woven around the subject of Burgers' Sommario/riassunto turbulence/KPZ model of interface growth, a study of the nonlinear parabolic equation with random initial data. The analysis is conducted mostly in the space-time domain, with less attention paid to the frequency-domain picture. However, the bibliography contains a more complete information about other directions in the field which over the last decade enjoyed a vigorous expansion. The notes are addressed to a diverse audience, including mathematicians, statisticians, physicists, fluid dynamicists and engineers, and contain both rigorous and heuristic arguments. Because of the multidisciplinary audience, the notes also include a concise exposition of some classical topics in probability theory, such as Brownian motion, Wiener polynomial chaos,

etc.