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   Titolo   Degenerate Diffusions [[electronic resource]] : Initial Value Problems
                        and Local Regularity Theory / / Panagiota Daskalopoulos, Carlos E.
                        Kenig

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   Descrizione fisica   1 online resource (207 pages)

   Collana   EMS Tracts in Mathematics (ETM) ; 1

   Classificazione   35-xx

   Soggetti   Differential equations
                        Partial differential equations

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Sommario/riassunto   The book deals with existence, uniqueness, regularity and asymptotic
                        behavior of solutions to the initial value problem (Cauchy problem) and
                        the initial-Dirichlet problem for a class of degenerate diffusions
                        modeled on the porous medium type equation $u_t = u^m$, m 0, u 0.
                        Such models arise in plasma physics, diffusions through porous media,
                        thin liquid film dynamics as well as in geometric flows such as the Ricci
                        flow on surfaces and the Yamabe flow. The approach presented to
                        these problems is through the use of local regularity estimates and
                        Harnack type inequalities, which yield compactness for families of
                        solutions. The theory is quite complete in the slow diffusion case ($m >
                        1$) and in the supercritical fast diffusion case ($m_c < m < 1$, $m_c = (n - 2)
                        +/n$) while many problems remain in the range m mc. All of these
                        aspects of the theory are discussed in the book.   The book is
                        addressed to both researchers and to graduate students with a good
                        background in analysis and some previous exposure to partial
                        differential equations.