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Unconditionally Stable Explicit Difference Schemes for PDEs

By Masaharu Nakashima

LAP Lambert Academic Publishing Mrz 2016, 2016. Taschenbuch. Book Condition: Neu. 220x150x4 mm. This item is printed on demand - Print on Demand Neuware - This book presents some numerical explicit schemes for some linear and nonlinear Parabolic PDEs. A number of different schemes for solving partial difference equations have been proposed. However, in using the explicit methods, stability of algorithms is a serious problem. The scheme is required the condition of step size ratio $k/(h \Delta t)$ is limited, where k and h are step sizes for space and time respectively, and we have to take small time step size which causes the long time in calculation. We will present the explicit scheme for some parabolic equations, which has no restriction on the step size ratio $k/(h \Delta t)$. We also prove convergence of difference schemes. In this book, we present four papers. Using the same idea, we may derive the difference equation for other PDEs problem. The presentation of this book is comprehensible by the beginners also. This book will help the physicists, chemist, computer scientist, applied mathematicians, engineers, who undertakes research on phenomena the linear and nonlinear PDEs. 60 pp. English.

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