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   Titolo   Splitting Methods for Partial Differential Equations with Rough Solutions
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   Sommario/riassunto Operator splitting (or the fractional steps method) is a very common
                       tool to analyze nonlinear partial differential equations both numerically
                       and analytically. By applying operator splitting to a complicated model
                       one can often split it into simpler problems that can be analyzed
                       separately. In this book one studies operator splitting for a family of
                       nonlinear evolution equations, including hyperbolic conservation laws
                       and degenerate convection-diffusion equations. Common for these
                       equations is the prevalence of rough, or non-smooth, solutions, e.g.,
                       shocks. Rigorous analysis is presented, showing that both semi-
                       discrete and fully discrete splitting methods converge. For conservation
                       laws, sharp error estimates are provided and for convection-diffusion
                       equations one discusses a priori and a posteriori correction of entropy
                       errors introduced by the splitting. Numerical methods include finite
                       difference and finite volume methods as well as front tracking. The
                       theory is illustrated by numerous examples. There is a dedicated web
                       page that provides MATLAB codes for many of the examples. The book

is suitable for graduate students and researchers in pure and applied mathematics, physics, and engineering.