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Titolo	Parabolic Wave Equations with Applications / / by Michael D. Collins, William L. Siegmann
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Sommario/riassunto	This book introduces parabolic wave equations, their key methods of numerical solution, and applications in seismology and ocean acoustics. The parabolic equation method provides an appealing combination of accuracy and efficiency for many nonseparable wave propagation problems in geophysics. While the parabolic equation method was pioneered in the 1940s by Leontovich and Fock who applied it to radio wave propagation in the atmosphere, it thrived in the 1970s due to its usefulness in seismology and ocean acoustics. The book covers progress made following the parabolic equation’s ascendancy in geophysics. It begins with the necessary preliminaries on the elliptic wave equation and its analysis from which the parabolic wave equation is derived and introduced. Subsequently, the authors demonstrate the use of rational approximation techniques, the Padé solution in particular, to find numerical solutions to the energy-

conserving parabolic equation, three-dimensional parabolic equations, and horizontal wave equations. The rest of the book demonstrates applications to seismology, ocean acoustics, and beyond, with coverage of elastic waves, sloping interfaces and boundaries, acousto-gravity waves, and waves in poro-elastic media. Overall, it will be of use to students and researchers in wave propagation, ocean acoustics, geophysical sciences and more.