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Sommario/riassunto	The book employs oscillatory dynamical systems to represent the Universe mathematically via constructing classical and quantum theory of damped oscillators. It further discusses isotropic and homogeneous metrics in the Friedman-Robertson-Walker Universe and shows their equivalence to non-stationary oscillators. The wide class of exactly

solvable damped oscillator models with variable parameters is associated with classical special functions of mathematical physics. Combining principles with observations in an easy to follow way, it inspires further thinking for mathematicians and physicists. ContentsPart I: Dissipative geometry and general relativity theoryPseudo-Riemannian geometry and general relativityDynamics of universe modelsAnisotropic and homogeneous universe modelsMetric waves in a nonstationary universe and dissipative oscillatorBosonic and fermionic models of a Friedman-Robertson-Walker universeTime dependent constants in an oscillatory universe Part II: Variational principle for time dependent oscillations and dissipationsLagrangian and Hamilton descriptionsDamped oscillator: classical and quantum theorySturm-Liouville problem as a damped oscillator with time dependent damping and frequencyRiccati representation of time dependent damped oscillatorsQuantization of the harmonic oscillator with time dependent parameters