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Autore	Li Jin-Jin, author
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Sommario/riassunto

A mechanical oscillator coupled to the optical field in a cavity is a typical cavity optomechanical system. In our textbook, we prepare to introduce the quantum optical properties of optomechanical system, i. e. linear and nonlinear effects. Some quantum optical devices based on optomechanical system are also presented in the monograph, such as the Kerr modulator, quantum optical transistor, optomechanical mass sensor, and so on. But most importantly, we extend the idea of typical optomechanical system to coupled mechanical resonator system and demonstrate that the combined two-level structure