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Altri autori (Persone)	BatesJason H. T
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Nota di contenuto	introduction -- lung anatomy and physiology -- lumped parameter models of lung function -- parenchymal tissue elasticity -- tissue viscoelasticity -- homeostasis and repair -- asthma -- pulmonary fibrosis -- chronic obstructive pulmonary disease -- acute lung injury -- lung defenses -- the aging lung -- what is coming next.
Sommario/riassunto	The lung is a complex multiscale organ that serves as the primary interface between the environment and the tissues of the body. Homeostatic maintenance of lung function throughout life is essential for health. While failure of lung homeostasis underlies many of the most common chronic diseases that afflict mankind, the precise pathophysiologic mechanisms involved are often unclear. Investigative techniques such as microscopic imaging and atomic force microscopy

are providing new insights into lung tissue properties at the micro scale. It nevertheless remains to be seen how this growing body of information can be integrated into a comprehensive picture of the lung. Mathematical and computational modeling has emerged as an essential tool for gaining such a holistic understanding. This book introduces the reader to the art of modeling as a means of linking lung structure to function over multiple length scales from the intracellular level to that of the whole organ, with specific attention given to the pathophysiology of a number of common lung diseases and aging.