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Nota di contenuto	Introduction -- Mechanisms of ductile mode cutting of brittle materials -- Ductile mode cutting characteristics -- Modeling of ductile mode cutting of brittle materials -- Molecular dynamic simulation of ductile mode cutting -- Ductile mode cutting of silicon -- Ductile mode cutting of glass -- Ductile mode cutting of tungsten carbide -- Ductile mode cutting of calcium fluoride -- Ultrasonic vibration assisted ductile mode cutting -- Thermally assisted ductile mode cutting -- Summary. .
Sommario/riassunto	This book provides a systematic and comprehensive interdisciplinary overview of ductile mode cutting of brittle materials, covering a range of topics from the fundamental physics to engineering practices. Discussing the machining mechanics and material properties, it explains the fundamental mechanism of ductile-to-brittle transition in the cutting of brittle materials. It also presents theoretical modeling and molecular dynamic simulation to demonstrate that ductile mode cutting can be achieved under certain conditions, as well as extensive experimental studies that produced smooth and damage-free surfaces on different materials, such as silicon, glass, tungsten carbide and

calcium fluoride. Lastly, it explores how the ductile mode cutting performance and machinability of brittle materials can be further improved by hybrid machining processes like ultrasonic vibration and thermal-assisted cutting technologies in order to meet industry demands. .