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Sommario/riassunto	<p>This book investigates the fatigue mechanisms and crack initiation of Ni, Al and Cu on a small-scale in the Very High Cycle Fatigue regime by means of innovative fatigue experimentation. A novel custom-built resonant fatigue setup showed that the sample resonant frequency changes with increasing cycle number due to fatigue damage. Mechanisms such as slip band formation have been observed. Cyclic hardening, vacancy and oxidation formation may be considered as early fatigue mechanisms.</p>