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Autore	Monea Cristian
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Nota di contenuto	Introduction -- Methods and equipment for signal acquisition and analysis for the detection of prohibited substances -- Nuclear quadrupole resonance spectroscopy -- Signal processing and analysis techniques applied in nuclear quadrupole resonance -- Modeling of signals used in nuclear quadrupole resonance spectroscopy -- Study of the NQR signal processing and analysis algorithms -- Analysis of nuclear quadrupole resonance response signals -- Development of signal analysis algorithms for NQR detection -- Solutions to improve NQR detection -- Implementation of a signal pre-processing, processing and analysis system for nuclear quadrupole resonance.
Sommario/riassunto	This book is about improving prohibited substances detection using the nuclear quadrupole resonance (NQR) technique at security checkpoints. The book proposes multiple signal processing and analysis techniques for improving detection of dangerous or contraband substances, such as explosives, narcotics, or toxic substances. Also, several hardware solutions are described and implemented in a custom-designed NQR spectrometer. A new approach

to NQR signal detection is introduced using artificial intelligence/deep learning techniques. The book will be useful for for researchers and practitioners in the areas of electrical engineering, signal processing and analysis, applied spectroscopy, as well as for security or laboratory equipment manufacturers.