



Magnetic Resonance Detection of Explosives and Illicit Materials (Hardback)

By -

Springer, Netherlands, 2013. Hardback. Condition: New. 2014 ed.. Language: English . Brand New Book ***** Print on Demand *****.Detection of concealed explosives is a notoriously difficult problem, and many different approaches have been proposed to solve this problem. Nuclear quadrupole resonance (NQR) is unique in many ways. It operates in a safe AM radio frequency range, and it can remotely detect unique fingerprint (NQR spectrum) of many explosives, such as TNT or RDX. As such, the detection of target does not depend on the shape or material of the container, or the presence of metallic object such as triggers etc. Spectra of chemically similar compounds differ enough that their presence never causes interference or false alarms. Unfortunately, widespread use is prevented due to low sensitivity, radiofrequency interference from the noisy environment, and inability to detect liquid explosives. This book presents current state of the art of the attempts to overcome NQR sensitivity problem, either by increasing the strengths of signals generated, or by increasing the specificity of the technique through a better understanding of the factors that affect the quadrupolar parameters of specific explosives. The use of these specific quadrupolar parameters is demonstrated on signal processing techniques that can detect...



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