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Nota di contenuto	Chapter 1. Neutron Scattering, Sources, and Instruments (Kevin D. Berry) -- Chapter 2. Neutron Detection Materials, Detector Properties, and Selection (Kevin D. Berry) -- Chapter 3. Gas-Based Detectors (Justin Beal) -- Chapter 4. Scintillator-Based Detectors (Matthew Loyd) -- Chapter 5. Other Detectors (Yacouba Diawara).
Sommario/riassunto	This book covers the most common neutron detectors used in neutron scattering facilities and all of those in use at Oak Ridge National Lab. It starts describing the facilities, instruments and the critical detector parameters needed by various instruments. Then the key components of the 3He-based linear position-sensitive detectors as well as on their electronics, which require particular attention to signal processing and noise reduction, are introduced. One chapter is dedicated to the 3He alternatives where scintillators play a critical role. It also covers emerging neutron detection technologies including semiconductors, vacuum-based devices and their associated readouts, which will be required in the future for high rate and high-resolution neutron detectors. The authors explain the logic behind the choice of materials

as well as the various constraints that neutron detectors must respect to be useful. Some of these constraints, such as efficiency and gamma-ray sensitivity are common to all neutron counters while others, like timing resolution, dynamic range, and peak counting rate, depend on the applications. The book guides experts, the nuclear science community, and young scholars through the physical processes and the required electronics in a way that is accessible for those not professionally involved in designing detector’s components and electronic circuits.