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Multi-Grid Boron-10 detector: from proof-of-principle to applications in time-of-flight spectrometers

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The Multi-Grid detector was introduced at the ILL and developed in collaboration with the ESS over the past 8 years. This detector technology emerged as a consequence of the need to find alternatives to ³He in neutron scattering detectors, where the large area needed makes ³He detectors prohibitively expensive. It has seen been demonstrated that the Multi-Grid and other similar detectors provide further advantages in the counting rate capability over that of ³He, while holding their ground in other key characteristics. This contribution will summarize the development and characterization work on the Multi-Grid detector prototypes. This includes two testing campaigns where Multi-Grid prototypes have been installed at CNCS and SEQUOIA instruments at the SNS providing invaluable in providing real in-beam performance and side-by-side comparison with ³He.

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